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FIELD OBSERVATION IN ECONOMIC ORNITHOLOGY

BY E. R. KALMBACH

Since the beginning of serious studies in economic ornithology in this country stomach examination has served as the backbone of the advance of that science. As early as 1858, Prof. J. W. P. Jenks examined the stomachs of Robins in Massachusetts and, on the basis of that work, he may be considered the American pioneer in that method of research.[1] Twenty years later Prof. Samuel Aughey's paper on "Notes on the Nature of the Food of the Birds of Nebraska" appeared.[2] He also employed stomach analysis as a means of obtaining data on which to base opinions. This published work was the result of researches extending "over a period of thirteen years on ninety different species, and an examination of more than 630 stomachs."[3] Soon thereafter appeared the memorable work of Prof. S. A. Forbes on the food of certain birds in Illinois.[4] This and other papers by the same author, who used stomach analysis as the foundation of much of his study, have established his name in the annals of economic ornithology as the founder of its modern phase. Other workers followed. There were Prof. F. H. King, in Wisconsin, Dr. B. H. Warren, in Pennsylvania, E. V. Wilcox, in Ohio, Prof. C. M. Weed, in New Hampshire, and through subsequent years, the various workers in the United States Department of Agriculture.. The leaders in this group included Dr. W. B. Barrows, Dr. A. K. Fisher, Dr. S. D. Judd, Prof, F. E. L. Beal, and W. L. McAtee. All of these workers availed themselves of stomach analysis as a basis for deductions.

In Europe events in the field of economic ornithology followed a somewhat parallel course. The work of Prevost, Schleh, Rörig, Herman, Newstead, Gilmour, and Collinge attests to the almost universal adherence among these workers, to the belief that the examination of

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[1]Trans. Mass. Hort. Soc. 1859.

[2]U. S. Entomological Commission, First Annual Report. (1878).

[3]Palmer, T. S., A Review of Economic Ornithology in the United States. Yearbook, U. S. Department of Agriculture, 1899: 259-292.

[4]Bull. Ill. State Lab. of Natural History (1880).

stomachs furnishes the most reliable data on which to base deductions concerning the general utility of birds.

With the passing of the years since stomach examination became the *sine qua non* of research in the field of economic ornithology, public confidence in its reliability has increased. It has acquired, in both the scientific and lay mind, a status of finality shared by no other method of approach. To call attention at this time, therefore, to what may be termed limitations in this well-established procedure, especially as applied to destructive species of birds, may appear presumptuous and even a bit late on the part of one who has spent nearly half of his life delving into the secrets of bird food through this very means. It is my intention, however, to do this very thing and in defense I may simply state that my object is not to detract from what has been done, well done in fact, nor to discredit in the least stomach examination as a fundamental procedure in the solution of problems in economic ornithology. Instead I wish to point out merely certain limitations of method and of application of data obtained by this means especially when species capable of inflicting severe damage are involved and to emphasize the importance in those cases of availing ourselves of pertinent data obtainable largely through field observation and experimentation.

It is fitting to explain at this point that the Biological Survey has for years taken cognizance of the points I am raising and has made decisions with these circumstances well in mind. The writer lays no claim to originality of argument or to discovery of method in the subject matter on which this paper is based. The limitations of which I speak are as old as economic ornithology and vexed even the pioneers in the field. I have ventured, however, to offer some modern aspects of these difficulties and have tried to show why at times the dictates of sound economic logic as well as the appeal of fair treatment for our birds compel us in special cases to leave the laboratory and go to the field for our answers.

The points raised are essentially only two; each has ramifications and varied aspects; and, as previously stated, they have their most pertinent application in the study of species capable of inflicting direct and severe damage. They may be outlined in the following language. Each will be discussed in turn and illustrated by a recital of incidents that have arisen largely in the writer's own experience.

1. *One concerns the difficulty in placing correct interpretations on some of the economically more important items that are revealed by stomach examination.*

2. *The other centers about our helplessness in attempting to convert abstract percentages of bird food items into terms of agricultural, horticultural, and other forms of modern, human economics.*

1. The Interpretation of Food Items

Knowledge of field conditions and the circumstances surrounding the collecting of stomach material is the key to the proper interpretation of food items. Were it possible for the examiner of bird stomachs personally to collect every specimen which he later examines, many of the uncertainties of our work would never arise. Yet even the keenest of observers cannot hope to know what has transpired previous to his observance of a bird, the stomach of which is later examined and found to contain remnants of food eaten several hours previous to its collection. Much is left to the examiner's own judgment in the light of general conditions, and, when material is examined by some one other than the collector, reliance must be placed on such notes and appraisal as the collector may have made, which, experience has shown, are usually woefully inadequate. The Biological Survey has aimed to reduce this element of doubt by giving its laboratory investigators all possible opportunity for field work.

As an illustration of the point at issue, let us cite the case of a crow's stomach—not an isolated or peculiar stomach—but simply one of many that may be encountered in the examination of a large series. The examination, in this case, was made by the writer some years ago. The bird, apparently an adult, was collected at Meriden, Connecticut, on June 2, 1915. The collector had submitted no notes of help in interpreting the items found and the examiner was placed on his own resources in their interpretation. The examination record first lists numerous insects of several different families, totalling 31% of the food. It then continues, "shell of hen's egg, 4%; feathers of a small bird, 1%; bones and flesh of a fish, 60%; trace of a batrachian; hulls of corn, 1%; vegetable debris, 3%."

Three of the six items mentioned, the hen's egg, feathers of a small bird, and corn are of more than ordinary importance from an economic viewpoint. The remains of the fish and the batrachian are of less interest, and the "vegetable debris" need not concern us. Every one of the six items, save the last, may have more than one perfectly plausible interpretation placed upon it.

The hen's egg may have been pilfered from some unguarded nest; it may have been an addled egg; or the fragments of shell may have been found as such by the Crow and eaten for the mineral matter contained—a habit of many female birds during the breeding season. By

applying the first interpretation this particular crow would be subject to censure; with either of the other interpretations the food item becomes of no economic importance.

The item, "feathers of a small bird" brings up a similar problem. Is the presence of these feathers indicative of an act of vandalism against some smaller species, or does it reflect simply the carrion-feeding habit of the crow which has found the body of a bird killed by flying into wires, by an onrushing automobile, or by some other cause?

A similar dual interpretation also may be advanced to explain the items of fish and a batrachian. The crow is somewhat of a fisherman and frog-catcher; he is just as energetic a scavenger of the lake shore and marsh.

Corn, in the particular stomach cited, formed only one per cent of the food, and since the crow was collected in early June, the probability is that the grain was waste gleaned from some previous year's corn field or from kernels left uncovered at the last planting. Yet there is the possibility that it may have come from a feed lot where the grain was being fed to stock, or even to poultry. At other seasons of the year the difficulty of interpreting correctly the corn found in crow stomachs is greater. Once the grain has been digested to the point where nothing but the seed coat remains, a condition found in many stomachs, there is no way known to the writer to differentiate sprouting corn in the spring of the year from waste of the previous autumn's crop. Later in the year we find in many stomachs that corn torn from the standing grain in the milk or dough stages is indistinguishable from that picked up after the harvest or that being fed to farm animals. With such uncertainties presenting themselves in the course of even the most painstaking examinations the investigator soon realizes that correct interpretation easily may be a *matter of greater significance than the identification of the item itself.*

From the crow we may pass to another of the Corvidae, the magpie, which presents a complicated problem in economic ornithology. It is more insectivorous than the crow but has many traits in common with that bird. It preys on other birds and their eggs, it raids hens' nests, feeds on carrion, attacks maimed or sickly livestock, and obtains a portion of its sustenance from farm produce. Illustrative of the difficulties arising in attempts to appraise the bird through stomach examination, inadequately supplemented with pertinent field observations, may be cited the following record of analysis.

The specimen, a nestling, was collected by the writer in May, 1912, in Utah, and is typical of a considerable series secured at the same time. With the exception of five per cent of vegetable debris, the food was entirely animal in character. Forty-seven per cent of it was obtained from the insect world and included certain coprophagous forms which lent circumstantial evidence of the character of mammal remains found. The items of greatest importance in the present discussion were "fragments of the shell of a hen's egg, 5%;" and "remains of a young *Microtus* sp., 43%". The question arising concerning the hen's egg is whether it conveyed evidence of a robbed nest or whether it meant merely the consumption of discarded shell fragments or a decayed egg. The fact that it had been fed to a nestling magpie lends credence to the former interpretation. But notwithstanding the fact that the writer personally collected and examined the specimen he cannot state beyond a reasonable doubt that the act of feeding on this material should be charged against the bird. A similar situation arises in connection with the remains of the *Microtus* eaten. Was the presence of this rodent in the stomach indicative of the predatory or scavenger habits of the magpie? The presence in the same stomach of a *Silpha ramosa* and twenty-four histerids gave strength to the latter contention, yet I have no evidence to show that the coprophagous beetles may not have been obtained from other carrion.

Evidence of the detestable habit of the magpie of attacking and feeding on young, sickly, or freshly branded livestock is unobtainable through stomach analysis. There is no satisfactory means of differentiating in stomach material between a mass of flesh and hair torn from the body of a helpless animal and that rent from a fresh carcass. When confronted with such a problem of appraisal the investigator, if unaided by pertinent field evidence, must resort to personal judgment which, candidly stated, often may be nothing more than a guess. The writer has himself examined many winter stomachs of magpies containing flesh and hair, which, for lack of evidence to the contrary, was construed as carrion. A pardonable bias in favor of a most interesting, though at times despicable species, no doubt played a part in this charitable interpretation. How much of this material was in fact torn from the backs of helpless animals one could not determine by stomach examination. It may readily be seen, therefore, that whenever the investigator is in a similar frame of mind this trait of the magpie will consistently be minimized when an appraisal of it is made through the laboratory. Later in this paper evidence will be cited in connection with another species, the red-winged blackbird,

in which the reverse is true—a tendency to obtain an exaggerated idea of damage when stomach analysis is employed as the means of approach.

Another bird possessing great individual and collective capacity for either good or harm and in an economic study of which the Biological Survey has made full use of the field method of approach is the Starling. The problem of interpretation arising in an appraisal of its insect food may, because of its extreme complexity, be omitted from the present discussion. There are no great difficulties in judging its diet of wild fruit, but in its feeding on cultivated fruit, the bird presents problems that vex the food analyst. I refer particularly to its consumption of late fruits—apples and pears. These items are detectable in the stomach in the shape of bits of fruit skins or masses of pulp. The Starling may obtain this either from marketable fruit in paying orchards, from isolated and abandoned trees, or from fallen fruit of no value, or from garbage. In each case the evidence revealed by stomach analysis would be essentially the same and were the bird not observed feeding on the controversial item at the time of its collection or shortly previous thereto, the examiner would find himself at a loss to appraise the situation. In this connection I recall having examined a series of Starlings collected near Adelphia, N. J. A large proportion of them contained the skin and pulp of apples which field observations indicated were obtained from a few abandoned trees, the fruit of which was of no commerial value, or at least was not being harvested. Another group of Starlings in the stomachs of which apple remains were found, was collected at Freehold, N. J. Here field observation indicated that the fruit might or might not have had marketable value. A third lot was obtained near Brookdale, N. J., under conditions that made it appear real damage was being inflicted by the birds. Stomach examination gave the same ambiguous answer in all three instances; field observation supplied the necessary information for a proper interpretation of the evidence. It might be added furthermore that field observation also brought to light the fact that damage to late fruit by Starlings is consistently greater in old, poorly kept orchards than in young, thrifty ones, supplying the bulk of the higher grade, marketable fruit.

The ubiquitous English Sparrow presents numerous problems in economic ornithology that are difficult of solution by the laboratory method alone: One of these arises from its insect-eating habits. If judgment were based solely on stomach analysis we would be led to believe that, during the balmy days of May and June, this bird (at

least the urban portion of its race) is a potent factor in the control of May beetles (*Phyllophaga*). In small towns of the Middle West, May beetles form a conspicuous portion of the diet of the young. Individual stomachs containing the remains of several of the bulky insects are not unusual, yet the seemingly commendable activity is severely discounted when a little field observation discloses the fact that the parent birds are obtaining many of the insects from beneath city arc lights where on mornings dead beetles may be found littering the pavement. In this manner the energetic destroyer of insects may suddenly assume the prosaic rôle of a scavenger of doubtful utility.

In judging the English Sparrow's vegetarian diet difficulties comparable to those mentioned under the discussion of other species arise. Are the oats found in the stomach of an adult female collected in the town of Independence, Iowa, in June, to be judged as waste gleaned from the street or were these kernels rustled from some suburban poultry yard? The wheat found in the crop of a sparrow shot on a roadside in Ohio, in July, may have been pilfered from the standing or shocked crop, picked up from waste in the stubble or along the road, or stolen from chicken feed. The pulp and skin of fruit may have come from a number of sourcees, each indicative of a different economic factor; yet all this material may have essentially the same appearance in the stomach contents.

This discussion might be carried on to include many other species, the economic influence of which is important and direct, and about which modern decisions are being demanded. Comparable cases showing the inadequacy of stomach analysis as the sole or dominant means of approach could be cited for such birds as the red-winged blackbird and ducks when feeding in rice areas; some of the hawks that at times develop habits akin to those of the carrion feeders, and, conversely, the vultures themselves that, in certain sections of the South, have been known to prey on living animals, such as newly born calves. Without substantiating field evidence, the fish in the stomach of an Alaskan bald eagle may be interpreted either as stream-polluting carrion or what might have been the contents of just one more can of salmon. The fingerling trout in the stomach of a kingfisher may be either an illustration of nature's normal control or it may represent an inroad on some hatchery, a favorite rendezvous for these birds during migration in August. Even the shells of rail eggs in the stomach of a Fish Crow collected on the Virginia coast may signify robbery or just plain frugality, according to whether the bird had destroyed a nest or was

engaged in making an honest, though lowly living by feeding on rail eggs destroyed by some unusually high tide.

From the foregoing one comes to the conclusion that the solution of some of our more important problems in economic ornithology depends largely on exact and pertinent field observation, without which much of our stomach examination data would have little significance. More than ever in these days of local adjustments in problems of wild life there is need for a correct interpretation of facts. To be able to identify items with specific exactness, items of utmost importance in the economic relations of the bird, and yet be unable to state whether those items should be placed in credit, debit, or neutral categories with respect to the economy of man plainly indicates that other methods of approach must at times be invoked. By all means there must be no slackening in laboratory research, but wherever it is evident that this method is incapable of accomplishing the object sought, there should be no hesitancy in adopting also some other plan that will give corroborative or other evidence of the status of the species. This the Biological Survey has endeavored to do throughout its work and only recently has placed even greater emphasis on field aspects of the economic study of birds and mammals by the establishment of a sublaboratory of its Division of Food Habits Research at Denver, Colo., where closer field contact may be had with western problems.

Let it not be inferred, however, that stomach examination, despite certain inherent weaknesses or limitations, does not play a most important, yes, indispensable rôle in our science. Aside from the legitimate demands of pure research in food habits to which stomach examination has and will continue to contribute bountifully, certain of the practical problems of economic ornithology lend themselves to direct solution solely or largely through this method of approach. I have in mind, particularly, those in which the identification of food items constitute the major objective. By that I mean that whenever we are seeking the *identity* of food items, irrespective of the economic significance of the bird's having fed on them, or whenever we aim to determine merely the presence or absence of particular items of diet, analysis of stomach contents is the only direct and reliable method of approach. And what a convincing method of demonstration it may be! Well do I recall experiences in 1919 when, after the enactment of the Migratory Bird Treaty Act making illegal the destruction of night herons, an inventive genius of the State Legislature of Louisiana, with fond longings for his favorite fried *grosbec*, contended that these birds

were highly destructive to the frogging industry of the State and hence legitimate objects of control. Investigation was made and in its course I had my first and most interesting contact with the ornithology and human inhabitants of modern Acadia. Night herons were collected, old and young, in the very county and with the aid of the very persons most affected by the alleged destructive habits of the birds. To a marked degree the specimens collected were "hand picked" to emphasize if possible their frog-eating propensities. Stomachs were examined later and in more than 100 studied, no trace of a frog was found, crawfish comprising practically the entire food. Needless to say the evidence acquired through stomach examination was amply sufficient to perpetuate the protection of the night herons.

In like manner stomach examination has yielded most convincing testimony in instances where field observations have been superficial or where circumstances have conspired to confuse the issue. I recall cases in which crop or timber damage has been charged against birds where, as a matter of fact, actual injury was inflicted by insects more or less concealed, which served as a lure and in that manner incriminated the more conspicuous birds. Stomach examination usually puts matters aright in such cases by revealing the identity of food items and thus places the blame for damage where it belongs. In this capacity, the laboratory channel of approach never will be excelled.

Stomach analyses of extensive and representative material is the only means, furthermore, of creating a background for proper appraisal of the general economic status of birds, something that is needed as a check upon every local or specific study.

2. Food Percentages and Economic Status

Workers in economic ornithology freely admit that food percentages, however computed, still must be interpreted by the investigator before decision on the status of a species may be determined. Abstract decimal or fractional values can not be subjected to mathematical formulae and results computed therefrom as can be done in problems of engineering or chemistry. One estimated percentage indicating a beneficial activity cannot be construed as offsetting an equivalent designation of opposite economic significance. After all the painstaking examination and computation of food percentages of a species have been completed, what we have is simply a somewhat more tangible and understandable picture of food preferences. The conversion of this into terms of human economics is a matter resting largely on the personal judgment of the investigator. The wider his field experience and the sounder his logic, the more accurate will be his

appraisal. A sympathetic understanding of agricultural problems will add much to the value of his decision. Yet, at best, in the attempt to convert abstract food percentages into terms of human economics, the ornithologist still is confronted with a problem of no mean proportion or complexity.

With all the afore-mentioned data before him, how satisfactorily can the investigator answer questions such as the following propounded, we will say, by some practical farmer: "With crows, as you tell us, subsisting on corn to the extent of thirty-eight per cent of their diet, what percentage of crop loss may I expect from this species on my farm in southern Illinois?" or, on the other side of the question, "Is the practical good done by the crows feeding on white grubs, which were found in one out of every twenty-four stomachs, sufficient to warrant my allowing them to go unmolested and 'pull' five per cent of my sprouting corn?" Again, from the rice growers of the Gulf Coast, he may hear, "Now that food analysis has shown that somewhat more than half of the food of the red-winged blackbird of the Gulf Coast is rice, is it sound economy for us to attempt wholesale blackbird destruction in the rice area?"

The inadequacy of stomach analysis alone to produce data with which to answer queries similar to the last and the necessity for field appraisal in meeting such problems was forcibly brought to light a few years ago in work in the coastal rice area of Louisiana. Two seasons' field study of the rice-blackbird problem supplemented by the examination of more than a thousand stomachs brought forth enlightening data. The stomachs showed that rice in one form or another—as seed, as ripening grain, as part of the harvest, or as scattered waste in the stubble—served as a year round article of diet, the staff of life of the redwing of southwestern Louisiana. During the milk and dough stages of the crop and during the harvest, rice supplied nearly the entire sustenance of these birds. The insects eaten by them, though in fair proportion during the breeding season, were not those of importance to the grower of rice. The problem as viewed through the laboratory microscope and as judged from the tenor of written complaints could be answered in only one way—by an unqualified condemnation of the redwing in that region.

What, however, were the findings of field study? Briefly they were these. As a feeder on rice in any of its stages, the redwing of the Gulf Coast is outstanding; the findings of the laboratory were reflections of what the individual blackbird was doing in the field; the damage complained of was real and severe—real and severe, how-

ever, *only along a narrow strip of rice country bordering on the coastal marshes.* At the short distance of two miles from the border the damage was less frequent, at four miles it was seldom experienced, and in the center of the rice area it was never mentioned. Yet the individual redwing in the center of the rice area ate just as much rice as the bird on the borderline and under the microscope its stomach contents told a story identical with that of the borderline bird. The difference in conditions came about through the fact that the daily flight of the enormous flocks from the roosts in the coastal marsh to the feeding ground in the rice area stopped on or near the first line of fields, leaving only small squads, stragglers, or local roosting birds to frequent the center of the rice area where their feeding in the extensive fields went wholly unnoticed. It can be seen that here is a case, in direct contrast with that of the magpie previously mentioned, where a judgment, guided largely by the results of stomach analysis, would tend to exaggerate to an undue degree, the damage done.

From the rice fields of Louisiana let us pass to the barley fields of the Imperial Valley, California, for another illustration of the necessity of field appraisal. The writer's contact with this problem occurred in the winter of 1921-22, a season during which the damage was by no means as severe as in previous winters, yet in some instances serious enough to force the replanting of fields, with the attendant losses of seed, labor, irrigation water, and time. From the very nature of the case the damage was local but severe. If for some reason, as a low head of water, or lack of suffiicient farm help, the process of irrigation after seeding was prolonged, dire results were likely to follow. "Puddle" ducks of several species were quick to locate the banquet and after a night or two of reconnoitering, enormous flocks made short work of the submerged barley.

How much of the economic and conservation aspects of this problem did the examination of stomachs supply? On the basis of about 150 stomachs of four species of ducks it revealed that pintails ate a greater percentage of barley (43%) than the other ducks, a fact quite generally recognized by local sportsmen and farmers. It also verified the generally accepted belief that widgeons ate more sprouting alfalfa than any of the other species. It also showed that the little Green-winged Teal ate less barley (22.0%) than the widgeon (24.5%).

What, however, did field studies show? In the first place, they told something of the extent of the devastation wrought. They shed light on the acreage of damaged fields and the fact that, in addition to the immediate injury, the ducks often so puddled and de-aerated

the fine silt of the grain fields that an unfavorable soil condition was created that lasted for several seasons. They revealed that the thirty per cent of young alfalfa eaten by the widgeon meant at times a severe economic loss in uprooted plants. They disclosed the fact that the widgeon, a more abundant and more voracious feeder, far out-stripped the diminutive teal as a destroyer of barley seed, although stomach examination showed only slight disparity between the proportions of barley found in each. And back of all that, they told the vital story that, so severe had the damage been in some winters that illegal shooting to protect crops was frequently resorted to; that honest efforts to protect grain were being discredited by abuses on the part of hunters who offered "their services in the cause of crop protection", that game law administration became a real problem, and that the whole fabric of the game protective movement in this locality was jeopardized largely because of a lack of understanding of what ducks can sometimes do. All in all, in the study of this local but vital problem of economic ornithology, field studies played a decidedly important rôle.

Not to confine the discussion to grain-eating species consider, for a moment, the irksome question of the ruffed grouse and its disbudding operations in apple orchards in New England, and the part that stomach analysis may play in clarifying the problem. Despite the fact that this can not be considered among the more serious of the problems in economic ornithology, it has been of enough consequence to result in state legislative provisions for the payment of damages locally.

For a basis of discussion let us take the contents of twenty-four crops of ruffed grouse collected in orchards in New Hampshire in 1923, at a time when there was much agitation against this species. Apple buds were present in nineteen of the crops and constituted 43.5% of the food. They were present at an average of 173 for each of the 19 crops in which they were found. One contained as many as 819. The remaining food consisted of buds, catkins, and browse of several species of wild trees and shrubs. That was the evidence contributed to the problem by stomach analysis; it tended to incriminate the ruffed grouse, but it in no way conveyed the graphic picture obtained by field observation. There was no doubt as to the correctness of the identification of the food items but one could not tell therefrom whether the indulgence of the grouse in this article of diet resulted in great damage, moderate damage, or possibly even in good through a process of desirable pruning. Such evidence was contributed, however, by horticulturists and zoologists of the New Hampshire State College of Agriculture. A detailed inspection of a representative

series of trees in an area whence reports of damage had come revealed a bud loss of forty-four per cent attributable to the work of grouse. Since some of this pruning would not result in an actual reduction in the crop the estimated crop loss, provided all other factors were equal, was placed at thirty-five per cent in the orchards inspected. There also came to light the attendant evidence that almost invariably damage of consequence occurred only in orchards situated near brush.

How well this illustrates the point that there is no tangible means whereby data on food preferences as revealed in stomach contents can be translated directly into terms of horticultural economy. Though we may say that under average conditions a ruffed grouse prefers an aggregate of buds of wild species to those of cultivated fruit, to measure and express the economic significance of its having fed on apple buds to the extent of thirty or forty per cent of its diet, is biologically and statistically impossible.

Few who know the meadowlark in the North have a realization of its capabilities for harm in sprouting corn fields of the South Atlantic States. Two factors, a predilection for the soft, sprouting kernel aggravated possibly by an early season scarcity of insects, and a flocking habit that tends to emphasize the effect of this trait, combine to make the meadowlark a distinct agricultural pest in the March planted corn in some sections of the Southeast.

Let me quote briefly from notes taken during a field study of the problem in 1919, when censuses were taken of the damage inflicted on early planted corn fields. "One of these, north of Manning, South Carolina, had been frequented by a flock of twenty-five larks for several days. Part of the field had been replanted but on a portion of the original stand I counted 298 healthy plants and 275 that had been either removed entirely or so badly damaged that they had little chance of surviving. A portion of a neighboring field revealed 168 missing plants, 231 damaged, and 172 untouched. While these counts were made in the most severely damaged sections there was injury throughout such fields that necessitated either replanting with the hoe or replowing and replanting with a planter. Whenever the proportion of damaged plants approached one-third of the total stand it was considered more economical to replow, which had the added advantage of an even stand."

"The replanting of portions or all of fields of early corn is an almost universal misfortune for the planter in parts of South Carolina. At times the replanted seed meets the same fate as the first sowing

and it requires a third planting to insure a stand with the loss of about three weeks of the best corn growing weather."

How much of this pertinent economic information is obtainable from stomach analysis and, in fairness it may be added, how much other information not discernible from field observation is to be had from the laboratory source? Unfortunately there is not available a representative series of stomachs of meadowlarks collected exclusively in corn fields of the Southeastern States. We do know, however, that the examination of 890 stomachs of meadowlarks collected under varied conditions in the Southeast revealed the fact that grain (corn, wheat, and oats) constituted a little less than nine per cent of the annual food.* Most of this was eaten during the winter months, indicating that it was waste. *No sprouting grain was found.* No doubt had more stomachs been collected in newly planted fields abstract evidence of this trait would have been revealed, but at best one could expect merely an indication of the habit, not an adequate idea of its economic significance and seriousness. Such an estimate necessarily must rest on careful, methodical, and often arduous, but none the less scientific work through field estimates and appraisals. In the case in point, field studies conducted by the Biological Survey revealed conditions that warranted the issuance of permits, locally, for the suppression of meadowlarks.

But what of that part of the story not readily acquired through field observation, that dealing with the insectivorous habits of these meadowlarks of the Southeast? Field observations usually yield little more than the fact that insects are being eaten. Stomach examination on the other hand has divulged the identity of these insect items, often with specific and subspecific precision. It has afforded data on the numbers eaten in the course of the bird's last "meal". It has estimated the proportion of the diet formed by each component and it has given us data from which a visual idea of the birds' insectivorous habits can be drawn, a picture of the food preferences of the species and the *part each group of items plays in furnishing sustenance for the bird.*

But may it not logically be asked, even as has been done in the case of those food items, the consumption of which represents a direct loss to man, how complete an understanding of the *economic effect of these insectivorous habits* have we other than that obtained through a more or less theoretical process of deduction in which the judgment of

*U. S. Dept. of Agri., Farmers' Bulletin 755. Common Birds of Southeastern United States in Relation to Agriculture, by F. E. L. Beal.

the investigator plays an all important, yet uncertain part? Does not stomach examination alone, though far-reaching in its accomplishments, fall short of the goal in the economic appraisal of insect food, as in the appraisal of losses to farmers' crops?

Let us try to simplify the picture by omitting, for the present, the highly involved interrelations existing between the varied insect forms commonly entering into the diet of a bird, or, if preferred, let us assume that we have a complete understanding of all these interrelations and that there is nothing left for the stomach examiner to "interpret" among the food items he discloses—truly an all-embracing assumption. Let us grant that he has identified all items, computed the proportions of each and understands the abstract economic significance of the destruction of each insect item by the bird. Yet consider for the moment what chasms still are to be spanned. With all these data before him can the stomach examiner answer the direct and plausible inquiry, "Is it sound agricultural practice to allow meadowlarks full freedom of the corn field during sprouting time with the expectation that their destruction of wireworms is service well rendered at the price of one or two replantings of the field because of their corn pulling activities?"

To cite another case, who can state what degree of suppression of the alfalfa weevil is exerted by the English Sparrow in Utah by reason of the fact that about twenty-eight per cent of the food of the young and thirteen per cent of that of the adults during three months of the year is obtained from this source? The answer to this will remain undetermined until some estimate is had of the weevil-destroying capacity of the race as a whole in relation to the total weevil population. To say that twenty-eight per cent of the food of young English Sparrows is composed of alfalfa weevils is significant in the laboratory appraisal of the *food preferences* of that species, and might, in the judgment of some, place the balance in the bird's favor. Protection might even be urged as reward for commendable service. Yet, without an understanding of the effect of this destruction on the total weevil population, no one is able to say whether this service is considerable or insignificant. One might as well aim to answer the query, "How rapidly are our national timber resources being depleted?" by stating that one per cent of the average man's yearly expenditure (or power to consume) is spent for lumber.

Other illustrations may be cited, but the foregoing, coming to mind by reason of the writer's personal contact with most of the problems mentioned, will suffice to emphasize the inadequacy of stomach analysis alone in solving many of the modern problems in economic

ornithology. It is a truism, however, that stomach examination, carefully conducted, gives the best possible index to the food items of a bird, and in the light of many such examinations, an idea of the food preferences of a species. By it the general *tendencies* for good or harm can be shown; variations due to seasonal changes and those connected with environmental factors can be indicated in the abstract. It is even possible, by computing from the capacity of individual stomachs, and the daily dietary needs of birds, to obtain some rather hypothetical idea of their consuming powers, be it in relation to insect food or kernels of grain. Yet, withal, the results attained largely are those viewed from the standpoint of the bird itself. They fail to meet the issue when we are seeking *the effect of feeding habits*, which, in the final analysis, is the actual goal in many modern problems of economic ornithology.

The Sequel

Repeated contacts with problems similar to those dealt with in the foregoing recital lead one to the simple and evident conclusion that determination of the economic status of a bird, its relation to the interests of man, calls for something more than a knowledge merely of food habits or food preferences. Economic status and food habits are, by reason of their fundamental aspects and definitions, antithetic. In seeking the economic status of a species one aims to determine and to express in understandable form the effect of its feeding and other habits on agriculture, horticulture, forestry, and other human interests. On the other hand, a record of the food habits of a species, as obtained through stomach analysis, is an expression of the part that grain, fruit, truck crops, poultry, and various other products of the farm, as well as the weed, insect, and rodent pests of the land play in furnishing the sustenance of the bird. The one discloses the influence exerted by the species on man and his welfare; the other shows the manner and extent to which the product of nature's and man's activities affect the species. The one indicates what should or may be done to improve the interrelationship to the advantage of man; the other reveals in what manner conditions may be altered with respect to the well-being of the bird.

With all this evident distinction between the two, how frequently do we encounter a confusion of ideas on the subject! Primarily the objective in our problems is one of economics; yet the product of much research into the economy of birds is purely biological. This product, the result of painstaking stomach examination, often is looked upon as the end sought or, if not actually the goal itself, so close an ap-

proach to it that the intervening gap is but a step in a simple process of deduction. Therein lies a fallacy that has served as the theme of much of this paper.

Two points have been stressed in this discussion, (1) the importance of correct interpretation of the items found in stomach contents, and (2) the need of a method or procedure helpful in bridging the gap between abstract food percentages and the economic objective, the effect of the birds' feeding habits. As I see it there is only one course open to the attainment of these objectives, possibly not completely, but in a substantial manner, and that is through intensive and extensive application of field observations and experimentation.

It may be stated at this point that this very principle has been recognized in ornithological work in the Biological Survey for some years and is destined to play an even more important rôle in future studies. The needs and opportunities ahead are great. Although, in many problems the field has scarcely been touched, a beginning has been made which, as time goes on, should lead to marked advancement in the science.

One need not speak in detailed terms to set forth the general course open to a fuller, a fairer, and, withal, a scientific appraisal of the economics of bird life. Intensive field observations, which, in the attainment of their own peculiar objectives, may be conducted just as accurately and yield a product just as scientific as the painstaking work of the laboratory, come foremost. There are estimates to be made on a substantial and representative scale of the extent of injury done by species feeding on buds, fruit, grain, and truck crops. Likewise we should have more data on the actual insect and rodent destruction effected by birds, revealed by close inspection of infested areas. In the verification of such data the use of representative quadrats, some bird-frequented and others devoid of birds, should lead to convincing facts. There is much yet to be learned of the direct and aggregate effect for good or harm of several common species that appear at some seasons of the year in great flocks; and then, of prime importance is the ever present need of a close study of environments in which material is collected for subsequent stomach examination in order that the factor of uncertainty in interpretation may be kept at a minimum.

As time goes on the economic ornithologist will find himself confronted with an ever broadening field of work. His problems will become more complex and any attempted aggressive action is bound to be closely scrutinized by an increasingly more watchful public.

Already there is a real and appealing need for extensive study in methods of preventing or reducing bird damage through means less drastic than wholesale destruction. There is missionary and experimental work to be done, largely of the farm demonstration type, to meet certain situations in which the most practical and economical solution seems to be, not in attempts at bird control, but in the avoidance of damage by a well planned change in the crops being raised. It will take time and patience and a sympathetic understanding of the viewpoint of those affected to reach a satisfactory solution in matters such as these. To deny a fair hearing or to minimize a just complaint may cause irreparable harm to the very cause we hold most sacred. An open-mindedness, and a willingness to study and decide each problem on its merits should characterize every attempt at appraisal or adjustment. Much of this can be done only in the field, and it is there, as I see it, whence our most important missions in economic ornithology now beckon.

U. S. Biological Survey,
Denver, Colorado.

NINETY MINUTES WITH ROBERT RIDGWAY

BY DAYTON STONER

Contacts with the masters lend inspiration and enthusiasm to the efforts of those who would learn. Such a contact serves as the basis for the present brief narrative.

In the course of an automobile trip from Denver, Colorado, to Gainesville, Florida, taken in October, 1927, by Mrs. Stoner and the writer, we recalled, as we neared Olney, Illinois, that this was the home town of Robert Ridgway, who, at the time of his death in 1929, without doubt was entitled to the distinction of being the Dean of living American ornithologists. Accordingly, it was decided to halt at this shrine for a passing visit.

Upon inquiry in the town we learned that the home of Mr. Ridgway was about a half mile from the business district and easily accessible. Driving south over the railroad tracks the visitors approached on their left a slight elevation, "Larchmound". This tract was well fenced in and presented a trimly cut lawn whereon the great profusion and variety of trees and shrubbery at once attracted attention. And, well back from the highway, beneath two tall and symmetrical larch trees nestling among this dense growth and more or less hidden by vines and shrubs, reposed an old and unpretentious, though well pre--

served, brick structure, the commodious and comfortable home of the great ornithologist.

A winding brick walk invited one toward the house and the visitor was prone to stop frequently to examine a plant or to catch a more intimate glimpse of a flitting bird. But his enthusiasm received somewhat of a jolt when upon reaching the door he beheld a neatly written notice posted thereon and stating that "Mr. Ridgway is not available to visitors between 9:00 A. M. and 5:00 P. M., except by appointment."

I had never met Mr. Ridgway and having no "appointment" I was about to retreat in good order when it occurred to me that even if I did attempt to intrude upon his presence I would receive only a verbal denial or at most be accused of inability to read. Thus mustering up my courage, I pushed the bell. After a short wait there appeared in the doorway a rather slightly built and somewhat stooped elderly gentleman who upon inquiry admitted that he was Robert Ridgway. The seeming affability of the man gave me confidence and I explained that I had been a student of a well known professor of Zoology with whom Mr. Ridgway formerly had been associated in field work, and that, being interested in birds myself, I had taken the liberty of dropping in on him for an impromptu visit. "Just walk about in the yard for a bit; I shall be right out", he said. And in a short while, having donned coat and hat, Mr. Ridgway presented himself to us on the spacious lawn.

Then followed an hour of inspection of his horticultural endeavors which had occupied much of his time during recent years. Failing eyesight, Mr. Ridgway stated, had compelled him to forego in some measure research in ornithology and in order to satisfy his naturalist's proclivities he had taken up botanical pursuits.

A great profusion of native and exotic plants from many places had been accumulated at Larchmound by Mr. Ridgway. India, China, the South Sea Islands, the West Indies, and South America were among the distant regions represented in this vegetational display. It was a pleasure to note the great joy that the owner experienced in explaining this or that plant; occasionally he varied the procedure by quickly breaking off a twig or a bit of fruit from one, to present as a gift. The matter of fact way in which he employed botanical phraseology was something to admire and indicated an unusual degree of familiarity with the plant kingdom.

Now and again a bird bath or half-concealed feeding place for birds was disclosed during our ramble which included an inspection of the large open area between the house and barn. Cardinals, Blue

Jays, Robins, and other birds were observed as they accepted the advantages of this proffered hospitality.

Being reminded that volume nine of his latest masterpiece "The Birds of North and Middle America" was yet to be completed, the author quietly, indifferently, admitted the allegation and continued his discussion of some interesting native or exotic plant.

The honors having been done for the outdoor attractions, an invitation was extended to enter the house. We stood not on formality and were ushered into a comfortable sitting room by the back way. Immediately following introduction to his sister, Mrs. Lida Palmatier, who had lived with him since the passing of Mrs. Ridgway, Mr. Ridgway brought forth a box of Perfectos, offered a cigar and chose one for himself.

Then resting comfortably in his chair and serenely blowing faint rings of blue smoke, the noted ornithologist recalled for us some of the changes that had taken place in the local native bird and plant life of the territory about Olney since he had known it. This reminiscent mood was full of action, life, and an occasional bit of humor; and no small amount of interest was furnished the occasion by Mrs. Palmatier's quite supplementary observations.

To an ornithologist, perhaps the item of greatest interest outside the host and his sister was the bird feeding station which extended the full width of the ledge of a large east window. This permitted a flood of autumn sunlight to enter the room and at the same time a view of the flights and foibles of the feathered tribe that found here an abundant daily repast. While we looked and talked, Blue Jays, Robins, a White-breasted Nuthatch, a Cardinal, Black-capped and Carolina Chickadees, and a Mockingbird graced the board with their presence.

Too soon the cigars had burned; time had flown. Conversation had not lagged but the journey must be resumed.

This brief and informal yet pleasant and intimate contact with a leader in his chosen profession has left its ineffaceable imprint on the recipient of the benefaction, who, previous to this meeting, was quite unknown to the benefactor except through the medium of a few publications. The personal charm of Robert Ridgway will ever be recognized as one of his finest attributes. It is an attribute that we all can afford to cultivate.

New York State Museum,
Albany, N. Y.

A HAWK CENSUS FROM ARIZONA TO MASSACHUSETTS

BY MARGARET MORSE NICE

On June 18, 1933, our family left Ohio for a motor trip to Chicago, Oklahoma, New Mexico, and Arizona, returning to Columbus July 24. During twenty-one of the thirty-five nights we camped out in the open, in woods, pastures, or deserts. On August 7 and 8 we drove from Columbus to Pelham, Mass. A record was kept of all hawks, owls, and vultures seen, and also all owls heard while camping. The results are given in Table I.

TABLE I

CENSUS OF RAPTORES THROUGH TWELVE STATES

State	Nights Camping	Mileage	Numbers Seen				Number of Miles to a Bird			
			Hawks	Owls	Vultures	Total	Hawks	Owls	Vultures	Total
Massachusetts	0	71	0	0	0	0	0	0	0	0
New York	0	391	3	0	1	4	130	0	391	98
Pennsylvania	0	47	0	0	0	0	0	0	0	0
Ohio	0	410	1	0	4	5	410	0	102	82
Indiana	1	310	0	0	1	1	0	0	310	310
Illinois	1	656	1	1	2	4	656	656	328	164
Missouri	1	626	0	0	1	1	0	0	626	626
Kansas	0	26	0	0	0	0	0	0	0	0
Oklahoma	7	1480	7	6	20	33	211	247	74	39
Texas	2	557	7	7	16	30	79	79	38	19
New Mexico	6	1606	28	12	23	63	57	134	69	25
Arizona	3	678	6	6	3	15	113	113	226	45
Total	21	6858	53	32	71	156	129	214	96	44

On the 6858 miles we recorded 53 hawks, 32 owls, and 71 Turkey Vultures. This gives one owl every 214 miles, one vulture every 96 miles, and one hawk every 129 miles.

The states east of the 94th meridian have a much worse showing than those west of it, for in these seven states only 5 hawks, one owl and 15 vultures were noted on our drives of 2511 miles; i. e., one vulture to every 168 miles and one hawk to every 502 miles!

In the western states—from Oklahoma to Arizona—conditions were not so dismal. Here on drives of 4347 miles we saw 48 hawks, 31 owls, and 56 vultures, or one owl to every 140 miles, one vulture to every 77 miles, and one hawk to every 90 miles. Yet New Mexico was the only one of the twelve states where hawks did not seem scarce.

The weather was oppressively hot during the drive west until New Mexico was reached, the thermometer reaching 107° F. in the shade in western Oklahoma on June 30. The heat made most birds inactive

and perhaps reduced the numbers of raptores to be seen. Yet on our thousand mile return journey from Oklahoma to Ohio, July 22 to 24, when the weather was not uncomfortably hot, exactly one hawk and one vulture were recorded.

As to the kinds of hawks seen, there was one Marsh Hawk (*Circus hudsonius*), 2 Prairie Falcons (*Falco mexicanus*), 16 Sparrow Hawks (*Falco sparverius*), while the rest were *Buteos*. No Cooper's or Sharp-shinned Hawks (*Accipiter cooperi, A. velox*) were noted, although undoubtedly present in the wooded regions.

Owls were heard on only seven of the twenty-one nights on which we camped out, and twice these were Burrowing Owls (*Speotyto cunicularia hypugaea*). There were 25 of the latter on our list, 3 Screech Owls (*Otus asio*), one Horned Owl (*Bubo virginianus*), and 5 of whose identity we were not sure.

Oklahoma is the only state for which I have earlier records for comparison. From 1920 to 1923 we took 1689 miles of "Roadside Censuses" (Nice, 1921, 1922) in the nesting season, in which all birds seen from the motor car were recorded (but not those met in camp). These trips covered all parts of the state, something which was not true in 1933. The earlier censuses showed 16 hawks, 31 owls, and 105 Turkey and Black Vultures (*Cathartes aura septentrionalis, Corygyps atratus atratus*), i. e., one hawk to every 106 miles, one owl to every 55 miles, and one vulture to every 16 miles. If the trips were strictly comparable, it would appear that hawks have decreased by nearly one-half, and owls and vultures have shrunk to one-fifth their numbers ten years ago!

I do not believe the facts are as bad as this; if our former trips were to be repeated, it is to be hoped that the reduction in numbers would not prove as great as in these sets of figures. The owls in the earlier censuses were all Burrowing Owls, but in 1933 there were only two of this species. These birds are very dependent on the prairie dog as host in Oklahoma, and as this delightful little animal is exterminated, the owls disappear. The striking falling off in vultures may perhaps be partly due to lack of sufficient food.

In 1926 a hawk killing contest was staged in Oklahoma in which single men shot as many as 277 and 321 hawks. More than 4000 hawks must have been slaughtered (Nice, 1931, p. 68). It is not surprising that only a few of these fine birds are left, especially as their persecution never ceases.

The numbers of hawks in England and on the Gold Coast are compared by Winterbottom ('33a) in a discussion of censuses taken

from trains and motor-cars, the mileage in each country amounting to approximately 2700 miles. In another paper ('33b) he reports on a census of 352 miles in southern Africa. In both sections of Africa there was one hawk to every 82 birds, in England one to every 1060*. (In Oklahoma in the 1920 to 1923 censuses there was one hawk to every 626 birds). "That our English avifauna was impoverished has long been known", writes this author (1933a, p. 90), "but that hawks should be reduced to one-tenth of their numbers under more natural, if climatically different conditions, is somewhat surprising."

We are accustomed to pointing to England as a horrible example of a country where most of the raptorial birds have been exterminated. How do we compare with her? On the Gold Coast Winterbottom found one hawk to every 11 miles, in southern Africa one to every 15 miles, in England one to every 81 miles. We found one to every 129 miles.

The average for the three states west of the 100th meridian—Arizona, New Mexico, and Texas—is a little better than England, —one hawk to every 70 miles; if we include Oklahoma we are a little worse—one hawk in every 90 miles. *But the average of the states from Missouri to Massachusetts is six times worse than in England.*

Of course a main highway is not the best place in the world for seeing hawks, yet if the birds were not pitifully rare, one should have the pleasure of seeing several in a day's trip.

Our hawks are in a perilous position, and those who love nature must come to their rescue.

References

Nice, M. M. 1921. The Roadside Census. Wilson Bulletin. 33, 113-123.

—— 1922. Further Roadside Censuses in Oklahoma. Wilson Bulletin, 34, 238-239.

—— 1931. The Birds of Oklahoma. Pub. Univ. Okla. Biological Survey, III, No. 1. Pp. 1-224.

Winterbottom, J. M. 1933a. Bird Population Studies: a preliminary Analysis of the Gold Coast Avifauna. Jour. Animal Ecology, 2, 82-97.

—— 1933b. Bird Population Studies. A. Train Counts between Capetown and Mazabuka, Northern Rhodesia. The Ostrich, 4, 63-66.

Columbus, Ohio.

*Mr. Winterbottom in a letter informs me that his figure of 36 hawks and owls in England included 33 of the former, 3 of the latter.

OBSERVATIONS ON A FEW BREEDING BIRDS IN NORTHEASTERN OHIO*

BY JOHN W. ALDRICH

Judging from the published records, little is known about the breeding status of certain species of birds in Ohio. For this reason it seems desirable to place on record the pertinent unpublished material of this character which has been accumulating during the past few years in the files of the Cleveland Museum of Natural History.

The data presented here were obtained mainly during the course of field work by the writer, often in company with Mr. Herbert W. Brandt, Mr. Omar E. Mueller, or Mr. John H. Dittrick. Some of the material is contained in the unpublished works of the writer's colleagues, Mr. Arthur B. Williams, who is conducting ecological studies in Cleveland's North Chagrin Metropolitan Reservation, and Mr. B. P. Bole, Jr., who is carrying on similar studies at Little Mountain.

To facilitate the following discussion of the distribution of the species concerned, and to aid those who may wish to use these records, the following definition of localities is included:

Bradley Pond. In Geauga County, Burton Township, 28 miles southeast of Cleveland; elevation 1100 feet.

Bratenahl. In Cuyahoga County, eastern suburb of Cleveland; elevation 600 feet.

Gates Mills. In Cuyahoga County, Mayfield Township, 14 miles east of Cleveland; elevation 1040 feet.

Kirtland Hills. In Lake County, Kirtland Township, 23 miles northeast of Cleveland; elevation 900 feet.

Little Mountain. In Lake and Geauga Counties, Concord and Chardon Townships, 26 miles northeast of Cleveland; elevation 1260 feet.

Mayfield. In Cuyahoga County, Mayfield Township, 13 miles east of Cleveland; elevation 1080 feet.

Mechanicsville. In Ashtabula County, Austinburg Township, 45 miles east of Cleveland; elevation 800 feet.

Mentor Headlands. In Lake County, Mentor Township, 28 miles northeast of Cleveland; elevation 600 feet.

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*This paper was in the hands of the Editor at the time of the publication of the article "The Breeding Birds of Ashtabula County, Ohio", by Lawrence E. Hicks (Wilson Bulletin, XLV, pp. 168-195, 1933). This fact accounts for the absence of reference to this article in the present paper and for the crediting of certain records as new for the State, which claims are nullified by Dr. Hicks' paper.

North Chagrin Reservation. In Cuyahoga County, Mayfield Township, 15 miles east of Cleveland; elevation 900 feet.

Pymatuning Swamp. In Ashtabula County, Andover Township, 60 miles east of Cleveland; elevation 1000 feet.

Richmond. In Lake County, Painesville Township, 28 miles northeast of Cleveland; elevation 600 feet.

Snow Pond. In Geauga County, Burton and Troy Townships, 28 miles southeast of Cleveland; elevation 1000 feet.

Solon Bog. In Cuyahoga, Geauga, Summit, and Portage Counties; Solon, Bainbridge, Twinsburg, and Aurora Townships; 20 miles southeast of Cleveland; elevation 1000 feet.

The following annotated list includes such species as the writer deems sufficient interest because of the scarcity of published information concerning their breeding distribution in northeastern Ohio.

YELLOW-BELLIED SAPSUCKER. *Sphyrapicus varius varius.* There have been a few published records for the breeding of this species in Ohio, such as those of Oberholser (1) and Baird (2). The number of these records is so limited, however, that it seems desirable to report the following specimens collected in a red maple-yellow birch swamp forest section of Pymatuning Swamp; two males and one female, June 9, 1931; one female June 22, 1931; and one male July 19, 1932. These records, of course, do not constitute a definite proof of breeding, but the presence of the several birds of both sexes in the same area and in different years is fairly strong evidence for such a case, particularly as Sutton (3) has found this species nesting in the Pennsylvania section of this great swamp.

RED-BREASTED NUTHATCH. *Sitta canadensis.* It is believed that this nuthatch has never been reported as occurring in Ohio except in winter and during migration. Therefore the writer wishes to present as the first presumable breeding record for the State, the capture of a juvenal female on July 7, 1931, by John H. Dittrick, at Mentor Headlands. The bird was discovered in company with a White-breasted Nuthatch in the top of a tall tree at the edge of a small pond which forms part of a rather long, narrow wooded swamp known as Mentor Marsh. There are no hemlocks or other evergreen trees in this swamp nor anywhere else in the immediate vicinity of the place where the specimen was taken. This is interesting as it would seem likely that if the species bred in the State at all it would be in some of the hemlock ravines which most closely approximate the evergreen forests, the bird's normal breeding habitat in the north. It is quite

possible, of course, that this particular bird was raised in the splendid hemlock wood of the Chagrin or Grand River valleys seven or eight miles south of the point where it was captured.

Short-billed Marsh Wren. *Cistothorus stellaris.* Because of the localized distribution of the species in Ohio, as well as elsewhere throughout its range, due to its exacting habitat requirements, it was rather pleasing to find it nesting in good numbers in scattered sedge-meadow areas about the higher land bordering Pymatuning Swamp. On June 22, 1931, three birds were flushed but none were in song. On July 23, twenty pairs were located by the songs of the males in an area approximately a mile long by a quarter of a mile wide. Three pairs were located at Bradley Pond, June 14, 1932. On July 8, 1932, a breeding colony of twelve pairs were located by the songs of the males in a rather extensive meadow of pure sedge, *Carex* sp. and seed-box, *Ludwigea alternifolia*, at Solon Bog. Frequent observations carried on the same year in another open marsh area of ten and one-half acres at Solon Bog failed to produce any signs of Short-billed Marsh Wrens until July 23, when three males appeared and began to sing in a narrow belt of sedge-meadow bordering the marsh. On August 20, a nest containing recently hatched young was found in a clump of sedge overshadowed by jewel-weed and marsh grasses. Although both areas were scoured in the summer of 1933 at the same times of year that Short-billed Marsh Wrens were heard singing in 1932, not a single individual was found.

Prothonotary Warbler. *Protonotaria citrea.* Although reported as a common breeding bird at Buckeye Lake in the central part of the State by Walker, Trautman, and Thomas (4), this striking warbler is rare as a nesting species in any part of northeastern Ohio. Breeding records are reported from the vicinity of Wooster by Stevenson (5), from Huron by Morse (6), and from near Chardon by Cook (7). On June 3, 1931, a pair of Prothonotary Warblers was collected by the writer at the edge of an alder-buttonbush area in a swamp at Richmond.

Magnolia Warbler. *Dendroica magnolia.* Wheaton (8) credits this species with being "a summer resident in small numbers in northeastern Ohio", but no other mention of the breeding status of this warbler seems to have been forthcoming since that time. In view of this fact the writer wishes to place on record the capture of a specimen at Pymatuning Swamp on July 19, 1932. The bird was a male which was heard singing in the low, second growth hemlocks at the edge of the swamp.

BLACK-THROATED GREEN WARBLER. *Dendroica virens virens.* Although not generally credited with being an Ohio breeding bird, this warbler is apparently the most abundant in the northeastern part of the State during the nesting season of any of the typically boreal breeding species. Even here, however, it seems to be confined in its choice of nesting habitat to the hemlock woods, being most common where the hemlock stands are most extensive. Harper and Roth (7) reported this warbler breeding in the Roosevelt Game Preserve in Scioto County, and Doolittle (9) recorded it for Lake County. The writer found a single singing male Black-throated Green Warbler in the tall hemlocks at the edge of Pymatuning Swamp on June 9, 1931. On July 12, 1931, another was seen at North Chagrin Reservation. On the same date two more were seen at Kirtland Hills. During the breeding season of 1932, Mr. A. B. Williams (10) found three pairs nesting at North Chagrin Reservation in the "Beech-Hemlock association only". On June 24, 1933, the writer found three singing males in a bog at Mechanicsville, where hemlock was very abundant. During the entire summer of 1933 Mr. B. P. Bole, Jr. had fourteen pairs of Black-throated Green Warblers under observation in the white pine-hemlock forest on top of Little Mountain.

BLACKBURNIAN WARBLER. *Dendroica fusca.* Similar to the preceding species in its choice of nesting habitat, the Blackburnian Warbler is apparently less common in northeastern Ohio than the Black-throated Green Warbler. On June 9, 1931, two males of this species were collected in the last remaining stand of tall hemlocks on the Ohio border of Pymatuning Swamp. On June 22, two more of these warblers were collected. One was a male and the other a female, the latter showing by the bare condition of the abdomen unmistakable signs of nesting. During the breeding season of 1933, Mr. B. P. Bole, Jr. found two pairs of Blackburnian Warblers nesting in the pine-hemlock forest of Little Mountain.

CHESTNUT-SIDED WARBLER. *Dendroica pensylvanica.* Wheaton (8) called this warbler a summer resident in the northeastern part of the State, and Oberholser (1) recorded two summer occurrences of this species near Wooster. Jones (11), however, was unable to add any further information on this matter. Since then it has been reported as breeding at Jefferson in Ashtabula County by Sim (12) and by Campbell (13) at Oak Openings in Lucas County. The writer found a single bird on July 9, 1931, at Pymatuning Swamp and another on June 22, 1931, at the same place. On June 22, 1933, two singing males were found at Solon Bog and one was collected. In every case the

birds were found in the low, second growth trees bordering the swamps.

GRINNELL'S WATER-THRUSH. *Seiurus noveboracensis notabilis.* During visits to Pymatuning Swamp on June 9 and 22, 1931, this species was much in evidence in the red-maple-yellow birch swamp forest, and on June 9, ten singing males were counted. On June 22, four males were heard and two juveniles were collected. On June 11, 1932, one singing male was heard. In 1932, three singing males were found several times during the breeding season at Bradley Pond and three more at Solon Bog. In 1933, one singing male was discovered in a swamp forest at Mechanicsville. In a twenty-three acre area of red maple-yellow birch swamp forest at Solon Bog, one pair nested in 1932 and 1933. In the latter year young birds, just out of the nest, were seen on June 4.

Three adult breeding specimens taken June 10, 1931, and two juveniles taken June 22, 1931, at Pymatuning Swamp, and one adult breeding specimen taken June 14, 1932, at Bradley Pond, were examined by Dr. Harry C. Oberholser who considered them closer to *Seiurus noveboracensis notabilis* than to the eastern race, *Seiurus noveboracensis noveboracensis.* The presence of Grinnell's Water-thrushes in northeastern Ohio as migrants has already been recorded by Oberholser (14). Of the five migrant specimens present in the Cleveland Museum's collection from Ohio, all are *notabilis*, so it seems that this must be the common migrant as well as the breeding form of this species in this State.

PURPLE FINCH. *Carpodacus purpureus purpureus.* Concerning the breeding status of the Purple Finch in Ohio, Kirtland (15) said: "Saw several at Kinsman on the last of June of the present year" (1838). Neither Wheaton (8) nor Jones (11) give any further records. Doolittle (16) found a singing male in Lake County during June and July, 1917. The finding of a nest and eggs of this species in 1925 at Gates Mills was reported by Kendeigh (17), and the "Bird Calendar" (18) for 1932 records the presence of Purple Finches at Gates Mills during the breeding season in every year since 1925. Another positive breeding record for Gates Mills is represented by a female specimen carrying a fully developed egg, taken June 26, 1933, and now in the Cleveland Museum collection. Mr. B. P. Bole, Jr. reported the presence of four Purple Finches on July 3 and July 10, 1933, at Little Mountain, but weekly observation there prior to those dates had failed to disclose the presence of this species.

EASTERN SAVANNAH SPARROW. *Passerculus sandwichensis savanna.* There has been some discussion about the distribution of breeding Savannah Sparrows in Ohio. Campbell (19) pointed out that this species seems to be increasing as a breeding bird in northern Ohio and is apparently gradually extending its range southward. He came to these conclusions from published records for the State and from his own observations in the northwestern section near Toledo. In northeastern Ohio the Savannah Sparrow apparently breeds more or less commonly wherever very extensive meadows occur. It was heard singing on the outskirts of Cleveland throughout the breeding season of 1931. It was also found to be very common in the extensive meadows bordering Pymatuning Swamp. On June 22, 1931, ten singing males were counted there and several adults and juveniles were taken on that date and on July 23. In a low sedgy meadow at Solon Bog, one specimen was collected on June 2, 1930, another was taken at Bradley Pond, June 14, 1932, and another at Mayfield, June 7, 1933, in similar habitats.

SLATE-COLORED JUNCO. *Junco hyemalis hyemalis.* Kirtland (15). in referring to the junco said: "It breeds in great numbers in the dark beech woods of the Connecticut Western Reserve." Wheaton (8) called it a "resident throughout the year in northeastern Ohio" and had a definite record of its occurrence in July in Portage County. Hicks (20) found juncos breeding in surprisingly large numbers in Wayne, Andover, Richmond, Denmark, and Monroe Townships of Ashtabula County from 1928 to 1933. The "Bird Calendar" for 1931 (21) announced the presence of five juncos on Little Mountain on August 21, 1931. To add to these published records, during the breeding season of 1933, Mr. B. P. Bole, Jr. had a pair of juncos under observation in the pine-hemlock forest on top of Little Mountain. The young were found out of the nest on June 19, 1933.

WHITE-THROATED SPARROW. *Zonotrichia albicollis.* Another breeding record for this species has come to light to add to those of Jones (22) for Marblehead and Cedar Point, and those of Hicks (20) for Wayne and Andover Townships. Mr. B. P. Bole, Jr. reported the finding of adult White-throated Sparrows with young birds just out of the nest in June, 1929, among cultivated red pines and hemlocks at Bratenahl, an eastern suburb of Cleveland.

SWAMP SPARROW. *Melospiza georgiana.* It is strange that this species is not generally recognized as an Ohio breeding bird, as is evidenced by the statement of its range in the Fourth Edition of the A. O. U. Check-List, since there is no doubt about its nesting com-

monly in all favorable locations in the northeastern triangle of counties. Published records for the breeding of Swamp Sparrows in Ohio are very few. The first set of eggs was taken by Dr. Howard Jones at Circleville, twenty-five miles south of Columbus in May, 1881, and reported by Jones (11) in his catalogue of "The Birds of Ohio". The writer believes this is considerably farther south than the bird has been found breeding since. Kimes (23) reported the Swamp Sparrow as breeding near Canton, "seven or eight pairs" were found by Walker and Franks (24) breeding in a cranberry bog in southwestern Huron County, and Baird (25) reported this species as fairly common and nesting in Columbiana County east of Salem. It is interesting to note that Jones (26) did not find the Swamp Sparrow breeding in the extensive marshes of the Cedar Point region. The writer has found it definitely breeding in Cuyahoga, Lake, Geauga, Portage, and Ashtabula Counties. In one twelve-acre area of cat-tail marsh at Richmond three nesting pairs were under observation during June and July, 1931. One nest containing fresh eggs was found in a cat-tail clump on June 25, 1931. At Bradley Pond and Snow Pond it was found breeding commonly in 1931. At Pymatuning Swamp during June and July, 1931, it was abundant even rivaling the Song Sparrows in numbers. In 1930 it was found breeding commonly at Solon Bog. At the same locality in a ten and one-half acre area of common rush-woolgrass marsh, ten pairs were recorded nesting in both 1932 and 1933. Nearby, in a twenty-three acre red maple-yellow birch swamp forest, five pairs were recorded in 1932 and seven in 1933.

From these data it seems evident that the northeastern corner of Ohio should be included in the regular breeding range of the Swamp Sparrow. This species apparently breeds in other parts of the State only in scattered, extremely favorable localities.

Literature Cited

1. Oberholser, H. C. "A Preliminary List of the Birds of Wayne County", Bulletin of the Ohio Agricultural Experiment Station, Technical Series, Vol. 1, No. 4, pp. 243-353, 1896.
2. Baird, R. L. "Bird Migration at Oberlin, Ohio", Wilson Bulletin, Vol. 17, p. 82, 1905.
3. Sutton, G. M. "The Birds of Pymatuning Swamp and Conneaut Lake", Annals of the Carnegie Museum, Vol. 28, pp. 19-239, 1928.
4. Anonymous. "Notes on the Breeding Warblers of Central Ohio", Short Papers on Ohio Birds, Ohio State Museum Science Bulletin, Vol. 1, No. 1, pp. 53-58, 1928.
5. Stevenson, James. "Notes from Northern Ohio", The Auk, Vol. 43, pp. 554-555, 1926.
"Additional Notes from Wayne County, Ohio", The Auk, Vol. 45, pp. 226-227, 1928.

6. Morse, H. G. "Notes from Huron, Erie County, Ohio", WILSON BULLETIN, Vol. 26, p. 106, 1914.
"Nesting of Prothonotary Warbler Near Huron, Ohio", WILSON BULLETIN, Vol. 26, p. 212, 1914.
7. Cook, Orange. "The Prothonotary Warbler", WILSON BULLETIN, Vol. 27, p. 349, 1915.
8. Wheaton, J. M. "Report on the Birds of Ohio", Report of the Geological Survey of Ohio, Vol. 4, Part I, pp. 187-628, 1882.
9. Doolittle, E. A. "Black-throated Green Warbler as a Summer Resident", WILSON BULLETIN, Vol. 28, pp. 197-198, 1916.
10. Williams, A. B. "A Preliminary Study of a Beech-Maple Climax Community", (Unpublished).
11. Jones, Lynds. "The Birds of Ohio", Ohio Academy of Science, Special Papers, No. 6, 1903.
12. Sim, R. J. "The Chestnut-sided Warbler Nesting at Jefferson, Ashtabula County, Ohio", The Ohio Naturalist, Vol. 8, No. 1, p. 209, 1907.
13. Campbell, L. W. "The Chestnut-sided Warbler Nesting Near Toledo, Ohio", WILSON BULLETIN, Vol. 40, p. 253, 1928.
14. Oberholser, H. C. The Cleveland Museum of Natural History Bulletin, No. 42, p. 21, 1930.
15. Kirtland, J. P. "Report on the Zoology of Ohio", Geological Survey of Ohio, Second Annual Report, pp. 157-200, 1838.
16. Doolittle, E. A. "Notes from Lake County", WILSON BULLETIN, Vol. 29, pp. 161-163, 1917.
17. Kendeigh, S. C. "The Season: Oberlin (Ohio) Region", Bird Lore, Vol. 27, pp. 340-341, 1925.
18. "Bird Calendar", Prepared by Western Reserve University in collaboration with the Cleveland Bird Club, 28th year, No .3, 1932.
19. Campbell, L. W. "A Southward Movement of Breeding Savannah Sparrows in Ohio", WILSON BULLETIN, Vol. 40, pp. 223-225, 1928.
20. Hicks, L. E. "Some Breeding Records for Ohio", The Auk, Vol. 50, pp. 448-449, 1933.
21. "Bird Calendar", Prepared by Western Reserve University in collaboration with the Cleveland Bird Club, 27th year, No. 4, 1931.
22. Jones, Lynds. "Some Lake Erie Summer Notes", WILSON BULLETIN, Vol. 25, p. 152, 1913.
23. Kimes, E. D. "Swamp Sparrows at Canton, Ohio", WILSON BULLETIN, Vol. 20, p. 160, 1908.
24. Walker, C. F. and Franks, R. W. "Birds of an Ohio Cranberry Bog", Short Papers on Ohio Birds, Ohio State Museum Science Bulletin, Vol. 1, No. 1, pp. 59-63, 1928.
25. Baird, R. L. "The Season: Oberlin (Ohio) Region", Bird Lore, Vol. 33, No. 6, pp. 409-411, 1931.
26. Jones, Lynds. "Birds of Cedar Point and Vicinity", WILSON BULLETIN, Vol. 22, p. 98, 1910.

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FURTHER ADDITIONS TO THE LIST OF BIRDS VICTIMIZED BY THE COWBIRD

By Herbert Friedmann

[Continued from page 36 of the March number]

Dendroica palmarum palmarum (Gmelin). Western Palm Warbler. The Western Palm Warbler has not been recorded as a molothrine host before. Mr. T. E. Randall found two parasitized sets in Alberta.

Dendroica palmarum hypochrysea Ridgway. Yellow Palm Warbler. A set of two eggs of the warbler and one of the cowbird, collected by C. H. Merrill at Pittsfield, Maine, May 27, 1891, and now in the U. S. National Museum, is the fourth record known to me.

Seiurus motacilla (Vieillot). Louisiana Water-thrush. Previously known as a cowbird host in the eastern seaboard states, it is now also recorded in that capacity as far west as Michigan, where a nest was found in Monroe County, May 26, 1882, containing five eggs of the owner and two of the cowbird. The eggs are now in the C. E. Doe collection in the Florida State Museum.

Seiurus noveboracensis noveboracensis (Gmelin). Water-thrush. To the few instances previously listed may be added the following record: Starr (Oologist, vol. 48, No. 11, Nov., 1931, p. 154) found a nest of this bird with three eggs of the owner and one of the cowbird, near Woodville, Ontario.

Oporornis tolmiei (Townsend). MacGillivray's Warbler. A second record has been brought to my attention. Mr. S. J. Darcus found a nest containing one egg of the warbler and two of the Nevada Cowbird at Penticton, British Columbia, July 3, 1928. A third record is that of a young cowbird being fed by one of these warblers in the Yosemite Valley, California, reported by A. B. Stephens (Gull, vol. 14, No. 9, Sept., 1932, p. 2). The cowbird in question is probably *M. a. artemisiae.*

Geothlypis trichas brachidactyla (Swainson). Northern Yellow-throat. The New England and New York records, hitherto considered as typical *trichas* must now be looked upon as *brachidactyla* as this form is now granted recognition. Mrs. Nice (Birds of Oklahoma, revised edition, 1931, p. 162) records three victimized nests from Copan, Oklahoma. Mr. S. J. Darcus found a parasitized nest near Fredericton, New Brunswick.

Geothlypis trichas occidentalis Brewster. Western Yellow-throat. A parasitized nest found in Alberta by Mr. T. E. Randall is the second

one known to me of this bird acting as a host of the Nevada Cowbird. The previous record was from Utah. Mr. E. M. Tait found two parasitized nests at Trout Creek Point, British Columbia, making four records in all.

Geothlypis trichas scirpicola Grinnell. TULE YELLOW-THROAT. A third record has recently come to my notice, a set collected by Mr. N. K. Carpenter, in San Diego County, California.

Icteria virens longicauda Lawrence. LONG-TAILED CHAT. To the little previously recorded of this bird as a victim of the Nevada Cowbird, may be added three parasitized nests found at Trout Creek Point, British Columbia, by Mr. E. M. Tait. Mr. Guy Love writes me that he found a parasitized nest in Decatur County, Kansas, June 22, 1908. This record refers to the eastern form of the cowbird and is the first one for that race.

Wilsonia canadensis (Linnaeus). CANADA WARBLER. To the four records previously known to me may be added a fifth, a nest with four eggs of the warbler and one of the Eastern Cowbird, found by Mr. S. J. Darcus, near Fredericton, New Brunswick, June 10, 1910.

Setophaga ruticilla (Linnaeus). AMERICAN REDSTART. Previously known as a common victim of the Eastern Cowbird, it is now also known to be parasitized by the Sagebrush Cowbird (*M. a. artemisiae*) in the Dakotas, and commonly, according to Mr. T. E. Randall, in Alberta. In British Columbia Mr. E. M. Tait found a parasitized nest at Trout Creek Point.

Sturnella neglecta Audubon. WESTERN MEADOWLARK. Previously known as a molothrine victim in North Dakota and Montana, it is now known in this capacity in Idaho as well. In the files of the Biological Survey is a record of a nest with four eggs of the meadowlark and one of the Nevada Cowbird, found in June, 1912, at Dickey and Thousand Springs Valley, Idaho, by L. E. Wyman. I am indebted to Mr. George B. Saunders for this informaiton. It is also parasitized in Saskatchewan, according to information received from Mr. F. Bradshaw of the Provincial Museum at Regina. Mr. T. E. Randall found a parasitized nest in Alberta.

Agelaius phoeniceus phoeniceus (Linnaeus). RED-WINGED BLACKBIRD. In view of the scarcity of records of this bird being victimized in New England, as compared with the frequency of such cases in the Middle West, it may be recorded that a nest with three eggs of the blackbird and one of the cowbird was found at Bristol, Rhode Island,

and is now in the C. E. Doe collection in the Florida State Museum. Mr. E. J. Court found another parasitized nest in Maryland.

Agelaius phoeniceus arctolegus Oberholser. GIANT RED-WING. The records from Alberta, Saskatchewan, and North Dakota, included in my book (p. 212) under *A. p. fortis* should be referred to this race which is now recognized in the A. O. U. Check-List.

Agelaius phoeniceus fortis Ridgway. THICK-BILLED RED-WING. Previously I knew of but one instance of this form acting as a host to *M. a. ater* (*Auk*, 1931, p. 61). Since then Captain L. R. Wolfe has informed me that in Decatur County, Kansas, this bird is very frequently parasitized. "Probably ninety per cent of the red-wing nests contained one or more eggs of the cowbird and I remember frequent extended searches to find a nest without eggs of the parasite. During the years 1909-1914 I probably collected twenty or more sets of the Thick-billed Red-wing with cowbird eggs."

Agelaius phoeniceus californicus Nelson. BICOLORED RED-WING. One record, a nest containing two eggs of the red-wing and one of the Dwarf Cowbird, found thirteen miles southwest of Stockton, California, by W. B. Sampson.

Icterus spurius (Linnaeus). ORCHARD ORIOLE. A set of three eggs of the oriole and one of the cowbird, taken at Warwick, Rhode Island, June 6, 1887, and now in the C. E. Doe collection in the Florida State Museum, is the first record for Rhode Island and the second one for New England.

Icterus cucullatus nelsoni Ridgway. ARIZONA HOODED ORIOLE. In addition to Scott's data, given in my book (p. 214) may be recorded a nest with four eggs of the oriole and one of the Dwarf Cowbird, found in Hidalgo County, Texas, May 22, 1878, and now in the C. E. Doe collection in the Florida State Museum.

Icterus galbula (Linnaeus). BALTIMORE ORIOLE. Mr. T. E. Randall found a nest, containing two cowbird eggs in addition to those of the oriole, in Alberta. This is the first record for this species as a host of the Nevada Cowbird.

Icterus bullocki (Swainson). BULLOCK'S ORIOLE. Mr. Griffing Bancroft has a set of five eggs plus one of the Dwarf Cowbird, taken in Imperial County, California, May 18, 1921. This is the first California record, the previous cases being from Arizona and Oklahoma.

Euphagus carolinus (Müller). RUSTY BLACKBIRD. Mr. T. E. Randall found two nests of this bird in Alberta, each with eggs of the

Nevada Cowbird. Mr. A. D. Henderson writes me that he found this species victimized in Alberta. These are the first records for this bird as a molothrine victim.

Euphagus cyanocephalus (Wagler). Brewer's Blackbird. Previously known as a common victim in Montana, Colorado, and Idaho, it is now recorded as one of the chief host species in Alberta. As many as three cowbird's eggs have been found in one nest.

Piranga ludoviciana (Wilson). Western Tanager. Not previously known as a molothrine host. Mr. E. M. Tait found two parasitized nests at Trout Creek Point, British Columbia. One contained young of both the victim and the parasite (Nevada Cowbird); the other contained eggs of the two species. Mr. A. D. Henderson found this tanager to be victimized in Alberta.

Piranga rubra rubra (Linnaeus). Summer Tanager. To the few previous records (actually only five) may be added three more from Oklahoma, recorded by Mrs. Nice (Birds of Oklahoma, revised edition, 1931, p. 173). Mr. E. J. Court tells me that he has found cowbirds' eggs in nests of this tanager near Washington, D. C.

Pyrrhuloxia sinuata sinuata (Bonaparte). Arizona Pyrrhuloxia. Two records: a parasitized nest found near Tucson, Arizona, by Mr. N. K. Carpenter, and forwarded to me by Mr. C. G. Abbott; and one from Guaymas, Sonora, Mexico, June 25, 1928, G. Bancroft.

Hedymeles melanocephalus papago Oberholser. Rocky Mountain Grosbeak. Mr. Guy Love found two parasitized nests of this bird in Decatur County, Kansas, one on May 25, 1912, and one June 11, 1909. These are the first records I have of this grosbeak as a victim of the eastern form of the cowbird.

Guiraca caerulea caerulea (Linnaeus). Eastern Blue Grosbeak. To the little that was definitely known of this bird as a molothrine victim, may be added a record of a nest with three eggs of the grosbeak and one of the cowbird, in the Wichita Mountains, Oklahoma, June 6, 1926, and a record of a young cowbird and a young grosbeak reared together at Norman, Oklahoma. Both are recorded by Mrs. Nice (Birds of Oklahoma, revised edition, 1931, pp. 174-175). Mr. E. J. Court once found this bird to be parasitized in southern Maryland.

Guiraca caerulea interfusa Dwight and Griscom. Western Blue Grosbeak. The record mentioned by Simmons from Austin, Texas, and referred by me (The Cowbirds, p. 230) to *G. c. caerulea*, really relates to *G. c. interfusa*. Mr. Guy Love informs me that he has in

his collection five parasitized sets of this bird, all taken in Woods County, Oklahoma.

Guiraca caerulea salicaria Grinnell. California Blue Grosbeak. Hanna's southern California record, listed by me (The Cowbirds, p. 230) as *G. c. lazula* should be referred to this race. One additional record, a parasitized nest found by Mr. N. K. Carpenter, near Fresno, California.

Passerina amoena (Say). Lazuli Bunting. Previously known to be victimized on the basis of a few records from California and Colorado; it is also parasitized in Idaho. Bendire listed the Lazuli Bunting as a molothrine victim but did not publish his data. The set which he collected is now in the U. S. National Museum and was taken by him in Idaho, June 21, 1871.

Passerina versicolor versicolor (Bonaparte). Varied Bunting. In the collection of Mr. J. C. Braly of Portland, Oregon, there is a set of eggs of this bird with an egg of the Dwarf Cowbird. This is the second record of which I have learned. I had previously merely stated (*Auk*, 1931, p. 63) that there was one record of this bird as a cowbird host. Since then, Mr. J. Hooper Bowles has kindly sent me the data for this record, a nest with three eggs of the bunting and two of the Dwarf Cowbird, taken in Cameron County, Texas, June 4, 1927, by R. D. Camp.

Passerina ciris ciris (Linnaeus). Painted Bunting. This bird was previously known to be parasitized in Mississippi and Texas. Mrs. Nice (Birds of Oklahoma, revised edition, 1931, p. 176) records it in this connection in Oklahoma.

Passerina ciris pallidior Mearns. Texas Painted Bunting. This race, although not officially recognized in the A. O. U. Check-List, is perfectly valid. The San Antonio and Austin, Texas, records listed in my book (p. 231) as *P. ciris* belong to this race.

Carpodacus purpureus purpureus (Gmelin). Eastern Purple Finch. The purple finch has been known as a victim of the Eastern Cowbird, but until the present records, was not recorded as a host of the Nevada Cowbird. Mr. T. E. Randall found two parasitized nests in Alberta. Two parasitized nests found in Rhode Island are the first ones for that state and are of interest in view of the paucity of records of the purple finch as a molothrine host. Both sets are now in the C. E. Doe collection in the Florida State Museum. Both contain three eggs of the finch and one of the cowbird—the localities are Warwick (June 13, 1882) and Cranston (May 30, 1902).

Carpodacus mexicanus frontalis (Say). HOUSE FINCH. Robertson (*Condor*, 33, 1931, p. 138 and p. 205) reports a Dwarf Cowbird laying in a nest of a House Finch at Buena Park, California. This is the first record for this bird as a victim of the Dwarf Cowbird. There is an earlier record of its being victimized by *M. a. ater* in New Mexico. (The Cowbirds, p. 216).

Spinus tristis pallidus Mearns. PALE GOLDFINCH. Mr. F. Bradshaw, director of the Provincial Museum, Regina, Saskatchewan, informs me that he has found this bird to be victimized by the Nevada Cowbird (*M. a. artemisiae*) in Saskatchewan. Mr. E. M. Tait found a parasitized nest at Trout Creek Point, British Columbia.

Spinus psaltria hesperophilus (Oberholser). GREEN-BACKED GOLDFINCH. To the two records previously known to me may be added the following, kindly supplied by Mr. A. M. Ingersoll: a set of three eggs of the host with one of the Dwarf Cowbird, found near San Diego, California, April 27, 1920. Mr. Ingersoll informs me that he has found other parasitized nests of this goldfinch as well. Mr. Griffing Bancroft has a parasitized set from San Diego County, California, also.

Oberholseria chlorura (Audubon). GREEN-TAILED TOWHEE. To the few previous records may be added one more, a nest with an egg of the Nevada Cowbird, found in Mono County, California, by Mr. N. K. Carpenter. In my book (p. 228) I referred what records I had to the Nevada Cowbird, but they all really involve the eastern race, *M. a. ater*., and are the only records for the Eastern Cowbird.

Pipilo maculatus montanus Swarth. SPURRED TOWHEE. A set of two eggs of this bird and one of the Nevada Cowbird, collected at Beaver Creek, Colorado, June 6, 1897, now in the collection of Mr. G. Bancroft, is the second record known to me.

Pipilo maculatus arcticus (Swainson). ARCTIC TOWHEE. A fourth record has come to my attention. Prof. William Rowan writes me that he has an Alberta-taken set of this bird with three cowbird eggs.

Pipilo maculatus curtatus Grinnell. NEVADA TOWHEE. Mr. E. M. Tait found a nest of this towhee at Trout Creek Point, British Columbia, containing two eggs of the owner and one of the Nevada Cowbird.

Pipilo fuscus mesoleucus Baird. CANON TOWHEE. Mr. Griffing Bancroft informs me that he has in his collection two parasitized sets of eggs of this towhee, both from Santa Fé County, New Mexico, June

4 and 12, and a third similar set without data. This bird was not previously known as a molothrine victim.

Passerculus sandwichensis savanna (Wilson). SAVANNAH SPARROW. Snyder and Logier (Trans. Roy. Canad. Inst., XVII, 1930, pp. 194-195) saw an adult Savannah Sparrow feeding a young cowbird in York County, Ontario. This is the fifth record for this species.

Passerculus sandwichensis nevadensis Grinnell. NEVADA SAVANNAH SPARROW. In addition to the previously recorded instances of this bird acting as a molothrine host in Dakota, Montana, Colorado, and Saskatchewan, I may note a parasitized nest found near Utah Lake, four miles west of Provo, Utah, May 17, 1928, by Clarence Cottam, who kindly informed me of it. The cases recorded in my book were listed as *P. s. alaudinus*, but are all *P. s. nevadensis* in the light of present knowledge of the ranges of the forms of the savannah sparrow. Mr. J. C. Braly informs me that he has two parasitized sets in his collection.

Passerculus sandwichensis alaudinus Bonaparte. WESTERN SAVANNAH SPARROW. I had previously listed only one record from Alberta, but Mr. T. E. Randall found two other parasitized nests there.

Ammodramus savannarum australis. EASTERN GRASSHOPPER SPARROW. I had previously recorded this bird as a victim of the cowbird on the sole basis of Watkins (1st Rept. Mich. Acad. Sci., 1900, p. 71) who lists it as a host of the parasite in Michigan, but I had no definite nest records. Recently I have had an opportunity to run through Willard's "The Oologist" (published in Utica, New York, a very different journal from Lattin's serial of the same name published at Albion) and find that an anonymous author (the editor?) records (Vol. 3, No. 6, Aug., 1877, p. 44) finding a nest of the grasshopper sparrow with three eggs of the owner and one of the cowbird in northeastern United States (locality not definitely stated).

Ammodramus savannarum bimaculatus Swainson. WESTERN GRASSHOPPER SPARROW. Captain L. R. Wolfe writes me that he has a set of this bird with a cowbird's egg, taken in Decatur County, Kansas. This is the second record for *M. a. ater* parasitizing the Western Grasshopper Sparrow. Mr. B. W. Cartwright tells me that he found this bird parasitized by the cowbird near Winnipeg.

Ammodramus bairdi (Audubon). BAIRD'S SPARROW. In addition to the two records given in my book (p. 219) four others have since come to my notice. Mr. B. W. Cartwright, who is monographing this sparrow, writes me that Dr. T. S. Roberts found a nest with four eggs

of the sparrow and two of the cowbird in northern Sargent County, North Dakota, June 18, 1883. Mr. B. W. Cartwright informs me that his co-worker Mr. R. D. Harris, found eight nests of this sparrow in Manitoba, in 1931, and one of them contained a cowbird's egg in addition to three of the sparrow, July 8. On July 14 Mr. Harris, watching another nest from a blind saw a female cowbird approach the nest at 4:50 P. M. It inspected the blind but only came within two feet of the nest. Just then the female Baird's Sparrow appeared, flew to the nest and fed the young. The Baird's Sparrow now flew to the top of the blind. From its elevated position it saw the cowbird and flew at it. The cowbird flew away pursued by the Baird's Sparrow, which soon after returned to the nest and began to brood. Dr. L. B. Bishop collected two parasitized nests near Devil's Lake, North Dakota.

Passerherbulus caudacutus (Latham). LECONTE'S SPARROW. Previously known to be parasitized in Minnesota and Saskatchewan, this sparrow may now be recorded in this capacity in Alberta as well, where Mr. A. D. Henderson has found it acting as a host. The Minnesota records given in my book (pp. 219-220) refer to the Eastern Cowbird, the Saskatchewan and Alberta records to the Nevada Cowbird.

Passerherbulus henslowi susurrans Brewster. EASTERN HENSLOW'S SPARROW. To the few previously recorded instances of this bird as a molothrine victim may be added the following data: Mr. E. J. Court informs me that out of seven nests of this sparrow found in southern Maryland in 1932, two contained eggs of the cowbird, and that out of about fifteen nests found in previous years several were victimized. He considers the Henslow's sparrow a locally common host.

Poocetes gramineus confinis Baird. WESTERN VESPER SPARROW. Previously recorded as a host in Montana, Idaho, and Texas, and now also known in this capacity in Wyoming, Saskatchewan, and Alberta. There is a set of one egg of this sparrow and three of the Nevada Cowbird, taken by W. L. Carpenter at Cheyenne, Wyoming, June 29, now in the U. S. National Museum. Mr. T. E. Randall found five parasitized nests in Alberta, and Mr. S. J. Darcus found one at Cypress Hills, Saskatchewan.

Chondestes grammacus grammacus (Say). EASTERN LARK SPARROW. To the little previously recorded of this bird as a victim of the Eastern Cowbird may be added the statement that Mr. Guy Love found nine parasitized nests in Decatur County, Kansas.

Chondestes grammacus strigatus Swainson. WESTERN LARK SPARROW. Mrs. Nice (Birds of Oklahoma, revised edition, 1931, p. 183)

records five parasitized nests (out of 23) in Oklahoma. The cowbird in question is the eastern race, *M. ater ater*. Previously the Western Lark Sparrow was known as a host of the Nevada Cowbird and of the Dwarf Cowbird, but not of the eastern form.

Aimophila carpalis (Coues). Rufous-winged Sparrow. So little has been recorded definitely about this sparrow as a molothrine host that it may be well to put in print the fact that Bendire's statement of its being frequently victimized is based on two parasitized sets collected by him, now in the U. S. National Museum. A third, hitherto unpublished, set, also in the same museum, is one collected by H. P. Attwater at San Antonio, Texas, June 5, 1899.

Aimophila cassini (Woodhouse). Cassin's Sparrow. In addition to the three previously known records, we may add two parasitized sets of eggs of this bird, taken at San Antonio, Texas, by H. P. Attwater, and now in the U. S. National Museum. Mr. E. J. Court also found this sparrow to be victimized by the Dwarf Cowbird near San Antonio.

Junco hyemalis hyemalis (Linnaeus). Slate-colored Junco. Previously known as a victim of the Eastern Cowbird, it is now recorded in like capacity for the Nevada Cowbird. Mr. F. Bradshaw of the Provincial Museum, Regina, Saskatchewan, informs me that there is in his museum a set of two eggs of the junco and one of the cowbird, taken at Big River, Saskatchewan, June 5, 1922. Mr. T. E. Randall found two victimized nests in Alberta, and Mr. A. D. Henderson also found it to be parasitized in Alberta.

Spizella passerina arizonae Coues. Western Chipping Sparrow. To the relatively few records (Washington) previously known, may be added five more, all from Alberta, collected by Mr. T. E. Randall, and seven from British Columbia, found by E. M. Tait and S. J. Darcus.

Spizella pallida (Swainson). Clay-colored Sparrow. Prof. William Rowan writes me that he has a series of nearly twenty sets of this bird (taken in Alberta) with eggs of the cowbird. He and Mr. T. E. Randall consider this sparrow the commonest victim in Alberta.

Spizella breweri breweri Cassin. Brewer's Sparrow. Mr. Griffing Bancroft writes me that he has a parasitized set of this species from Santa Fé County, New Mexico, June 7, 1919. Owing to the paucity of data on this bird I include it in this paper.

Zonotrichia albicollis (Gmelin). White-throated Sparrow. A fourth record for the Eastern Cowbird has come to my attention. Snyder and Logier (Trans. Roy. Canad. Inst., XVII, 1930, pp. 194-

195) found a nest with three eggs of the sparrow and one of the cowbird in York County, Ontario, on June 3. Previously this sparrow was known as a victim of the Eastern Cowbird only, but it may now be recorded in that regard for the Nevada Cowbird as well. Mr. T. E. Randall found no fewer than six parasitized nests in Alberta; as many as four cowbird eggs were in one nest and three in another. Mr. A. D. Henderson also found it to be parasitized in Alberta.

Melospiza lincolni lincolni (Audubon). LINCOLN'S SPARROW. To the two previous records may be added four more, all from Alberta, collected by Mr. T. E. Randall. Mr. A. D. Henderson writes me that he too has found this sparrow to be parasitized in Alberta. Since the above was written Mr. G. Bancroft informs me that he has a victimized nest from Monroe County, New York, June 1, 1903. This is the first record for the Eastern Cowbird.

Melospiza georgiana (Latham). SWAMP SPARROW. In view of the paucity of records for this bird it may be of interest to note two victimized nests found in Alberta by Mr. T. E. Randall. One of them contained three cowbirds' eggs.

Melospiza melodia atlantica Todd. ATLANTIC SONG SPARROW. The records from Long Island, New York, south along the coast to Virginia, previously considered *M. m. melodia* should be placed under *M. m. atlantica*, now that the latter race has been officially recognized.

Melospiza melodia beata Bangs. MISSISSIPPI SONG SPARROW. The records from Illinois, Minnesota, Michigan, and Ohio, previously referred to *M. m. melodia* must now be considered as of this race.

Melospiza melodia juddi Bishop. DAKOTA SONG SPARROW. The record from Alberta given in my book (p. 226) for *Melospiza m. melodia* refers to *juddi*. The nominate race of the Song Sparrow should be deleted from the list of victims of the Nevada Cowbird. This race is a common victim in Alberta (many records, T. E. Randall, A. D. Henderson, etc.).

Melospiza melodia fisherella Oberholser. MODOC SONG SPARROW. One record, a set of two eggs of the sparrow and one of the Nevada Cowbird, found at Malheur Lake, Oregon, June 7, 1929, by W. B. Sampson.

Melospiza melodia morphna Oberholser. RUSTY SONG SPARROW. Mr. E. M. Tait found a nest of this bird with four eggs of the sparrow and one of the Nevada Cowbird, at Trout Creek Point, British Columbia.

Melospiza melodia santaecrucis Grinnell. SANTA CRUZ SONG SPARROW. One record. Mr. H. W. Carriger writes me that he has a set of two eggs of this bird plus one of the Dwarf Cowbird, collected near Irvington, Alameda County, California, June 30, 1929. Incubation was slight in all three eggs.

Melospiza melodia cooperi Ridgway. SAN DIEGO SONG SPARROW. In my book (p. 226) I reported four records. To these may be added the following data: Robertson (*Condor*, vol. 33, 1931, p. 205) found Dwarf Cowbirds' eggs in nests of this sparrow in West Orange County, California. Mr. M. C. Badger of Santa Paula, California, writes me that the San Diego Song Sparrow is a common victim of the Dwarf Cowbird. Mr. A. M. Ingersoll informs me that he has a set of two eggs of this sparrow with two of the Dwarf Cowbird, taken in San Diego County, early in June. Mr. E. E. Sechrist and Mr. N. K. Carpenter have found parasitized nests in San Diego County also.

Melospiza melodia saltonis Grinnell. DESERT SONG SPARROW. Three additional records: a nest of the Desert Song Sparrow found at Tucson, Arizona, June 3, 1884, containing four eggs of the sparrow and one of the Dwarf Cowbird; now in the C. E. Doe collection in the Florida State Museum; two nests with cowbirds' eggs found by Mr. Clyde L. Field, one at Tucson, Arizona, and one at Calixico, California. Previously I knew of only Bendire's record.

Rhynchophanes mccowni (Lawrence). MCCOWN'S LONGSPUR. To the very little hitherto recorded of this bird as a molothrine host may be added the following case: Mr. S. J. Darcus found a nest of this longspur with four eggs of the owner and one of the Nevada Cowbird at Cypress Hills, Saskatchewan, June 7, 1920. Dr. L. B. Bishop writes me that out of three nests found near Cando, North Dakota, two contained eggs of Nevada Cowbird in addition to those of the longspurs.

Calcarius ornatus (Townsend). CHESTNUT-COLLARED LONGSPUR. In view of the paucity of records, the following is worth including here: Mr. S. J. Darcus found a nest with four eggs of the longspur and one of the Nevada Cowbird at Cypress Hills, Saskatchewan, June 1, 1920. Three parasitized sets from North Dakota are in the United States National Museum .

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EDITORIAL

THERE ARE a few things that might be said concerning our funds which could hardly be made a part of the Treasurer's report. There were originally, so we understand, nineteen banks doing business in the county in which is located the bank in which our funds are now deposited; now there are five. Of these five we are told that the City State Bank, of which our Treasurer is President, is the only one which has come through without liquidating, reorganizing, or selling preferred stock to the Government, or even making an assessment on the stockholders. The W. O. C. funds are now covered by the Federal Deposit Insurance Temporary Fund. Not a cent of W. O. C. funds has been lost, and all bills have been paid as due. We feel as though we should congratulate Mr. Rosene as well as ourselves.

MR. FRED M. PIERCE has called our attention to an error in the list of officers on page 2 of the March number. It was an error to include Dr. Jesse M. Shaver in the roll of treasurers. He was Secretary from 1929 to 1931, and by typographical error his name was dropped to the list of treasurers, and so appears in the March numbers of 1932, 1933, and 1934.

CONGRESSMAN CLARENCE MACGREGOR, of Buffalo, N. Y., is quoted as follows in a recent address before the New York Waterways Association:

"Civilization must not be allowed to destroy itself. We must not be blind to the fact that the destruction of natural resources is suicide. Our civilization is too ruthless. We dry up our streams by failing to protect our forests. We kill the bird life by taking away their dwelling-places and leave the fields open for the pests that destroy our agriculture. We kill off our fish by destroying their home. We create cesspools from which to extract our drinking water. We fill our graveyards with the victims of our barbarity. We are more than foolish. We are absolutely stupid."

ONE of the drudgeries of editorial work is the preparation of an index. It is not uninteresting work, but it comes in a hurry, and must be finished up quickly, often at the inconvenience of the one who does it. The Editor wishes to express his gratitude to Mr. R. D. Hissong for his labor in the preparation of the indexes for the five volumes of the WILSON BULLETIN from 1928 to 1932, inclusive.

GENERAL NOTES

Conducted by M. H. Swenk

An Unusual Nest of the House Wren.—On June 18, 1933, while taking a drive, I stopped at a bridge over a small stream about five miles north of Knox City, Missouri. My attention was attracted to a House Wren (*Troglodytes aëdon parkmani*) carrying food in its beak. It disappeared under the bridge, so I investigated and found an unusual nest for this bird. It had taken possession of a Phoebe's nest and was rearing its five youngsters there without the trouble of building a nest of its own. The wren had not so much as added any material to the nest, which is unusual, as it ordinarily builds a bulky nest. I banded the young, which lacked three or four days of being old enough to fly, and considered myself lucky to have discovered this unusual nest.—H. L. Angus, *Quincy, Ill.*

The Western Solitary Sandpiper in Arkansas.—An eighteen-year-old record for the Western Solitary Sandpiper (*Tringa solitaria cinnamomea*) from Arkansas, has just been revealed. In a letter written under the date of January 31, 1934, Dr. Louis B. Bishop, of Pasadena, California, informs me that a specimen of solitary sandpiper, purchased with others from my Arkansas collection, collected at Fayetteville, Arkansas, April 3, 1916, by Albert Lano, is typical of that race. The bird is a male, and is number 49452 in Dr. Bishop's collection. It came into my possession with other of Dr. Lano's birds several years ago, after the death of the Fayetteville collector. He had referred the bird to the eastern race, and in the absence of material for comparison his identification had naturally been taken for granted.

As Dr. Bishop suggests, this bird appears to be a record for Arkansas. He has very kindly supplied me with the above information, and the note herewith has been prepared with his consent.—J. D. Black, *Museum of Birds and Mammals, University of Kansas, Lawrence, Kan.*

The Golden Eagle in Northern Louisiana.—Mr. Ernest G. Holt adds the Golden Eagle (*Aquila chrysaëtos canadensis*) to the Louisiana list (*Auk*, 1933, p. 355), which species was omitted in the "Birds of Louisiana" (Bull. 20, Louisiana Department of Conservation, 1931). But Mr. E. A. McIlhenny is of the opinion (*Auk*, 1933, p. 431) that Mr. Holt has mistaken the immature Bald Eagle for the Golden Eagle.

The two above notes having stimulated my interest, I made an investigation of a report that came out in a local newspaper of a Bald Eagle being caught near Pioneer, Louisiana. Upon making an investigation of this specimen, I found it to have all of the identification marks of an immature Golden Eagle. The most conclusive of these was the base of the tail being white and the tarsus being covered to the toes with ochraceous-buff feathers. The bird was caught January 12, 1934, in a No. 2 Victor steel trap, which was baited with a portion of a six-weeks-old pig that had been caught the day before. This eagle had caught six other pigs from this same brood before it was captured. On February 24, 1934, it broke the cord by which it was tied and attempted to fly away, but was killed. Its skin was preserved for future reference.—John S. Campbell, *Bienville, La.*

A Red-tailed Hawk Captures a Fox Squirrel.—I was just emerging from a small piece of woodland, a bit before noon on November 22, 1932, when I saw a Red-tailed Hawk (*Buteo borealis*), with an animal of some species clutched in its talons, dash out of a tree ahead of me and speed for a larger wondland beyond the highway. I wondered if it had torn a mink from one of my traps close by as the animal it clutched appeared no larger than that. I was pleased to see the bird settle in an elm about two hundred yards away, for as I carried a rifle I thought I could slip a bit nearer and shoot close enough to scare it into letting fall whatever it carried. I have never shot these hawks and did not wish to shoot this one, but I did want to know what animal it had taken. I started to carry out my plan, attempting to keep a large beech between us, but before I had gone thirty feet the bird quitted the tree it was in and sailed away. However, fortunately for my purpose, it dropped its burden. I hastened to the spot, but instead of a mink I found a full grown Fox Squirrel (*Sciurus niger rufiventer*). The hawk no doubt had found it a comparatively easy matter to capture the squirrel, for the animal's right fore leg had been torn out at the shoulder, probably by a load of shot some months previously. It was entirely healed over, but the loss of the limb had seriously hampered its agility, else the hawk had found it no little task to have taken it.—Grant Henderson, *Greensburg, Ind.*

The Pileated Woodpecker in Decatur County, Indiana.—On the afternoon of July 26, 1933, I set out prepared to band a nest of fledgling Indigo Buntings which I had found a few days previously in the edge of a woods popularly known as the "Paradise Woods", about one mile north of my home. I had forgotten my field glasses, but after banding the buntings I decided, nevertheless, to stroll farther into the woods, hoping to see some unusual bird or perhaps find some young birds that I might band. I had gone less than two hundred yards when I paused beneath a dead-topped beech tree to listen to the unusual amount of noise that a woodpecker, a Northern Flicker I thought, was making among the dead branches above. Showers of bark and chips were raining all about me. "A most unusual Flicker", I thought. "I never knew one to work so industriously nor one that made so much noise." I was preparing to move on, probably had made a step or two, when my attention was arrested by the sudden "swish", "swish" of wings. I got a glimpse of the bird, almost as large as a Crow, I decided, as it left the tree above me and again as it neared another dead-topped beech about fifty yards north. It appeared alarmed, although I had made almost no noise after my first pause. I knew immediately that it was one of the large woodpeckers, though I had never known the Pileated Woodpecker (*Phloeotomus pileatus*) to be seen, in late years, nearer than Brown County, and I had never heard of an Ivory-billed Woodpecker being seen in these parts. The bird alighted on the tip of a dead limb on the next beech and I cautiously made my way towards it. I was fortunate enough to approach very close, an attainment I had feared could not be mine judging from the apparent wariness of the bird. However, I was not more than fifty feet away when I paused to study it. The scarlet crest could plainly be seen, also the long, sharp bill. The bird, I am almost certain, was a male, since I could discern no trace of black in the forehead though, on the other hand, I could not be sure of the scarlet moustache said to be found only in the males. The distance was yet too great to be absolutely certain on these points, but there is no doubt whatever as to the species.—Grant Henderson, *Greensburg, Ind.*

Michigan Records Questioned.—The recent paper by Mr. Ralph Beebe on the "Influence of the Great Lakes on the Migration of Birds" (WILSON BULLETIN, XLV, No. 3, September, 1933, pp. 118-121) contains a number of bird records which we feel should not be allowed to pass unquestioned into the literature of the ornithology of Michigan. The following cases require comment:

Swainson's Hawk (*Buteo swainsoni*). Beebe—one seen near Newberry, September 10, 1910. There are but four entirely acceptable records of this hawk in Michigan. In view of its extremely variable plumage and its similarity to other species of *Buteo*, sight records of this species can be accepted only when they are made under very exceptionally favorable circumstances by observers thoroughly familiar with the species in the west.

Purple Sandpiper (*Arquiatella maritima*). Beebe—four records at Newberry. In reply to a letter of inquiry, Mr. Beebe has kindly sent us further information on these records. Unfortunately the "specimen" listed by Mr. Beebe proves to be not that at all, but simply a dead bird shown to him by a hunter twenty-three years ago. The bird was not preserved. Since there are no specimens or even other sight records for the Purple Sandpiper in Michigan, and since it is highly improbable that this marine sandpiper would occur several times at a locality such as Newberry so far from even the Great Lakes, we feel that these reports cannot be accepted as establishing the presence of the Purple Sandpiper in the state.

Pomarine Jaeger (*Stercorarius pomarinus*). Beebe—three seen in flight near Newberry. There is but one record of this jaeger in Michigan, a specimen collected in 1879 near Detroit. Sight records of jaegers by observers not thoroughly familiar with the many confusing plumages of all three species are certainly not conclusive and should not be used.

Arctic Tern (*Sterna paradisaea*). Beebe—two records (400 seen at East Tawas, October 6 and 7, 1930, and a smaller flock seen on the Detroit River, December 14, 1920). We have no satisfactory record of this marine species in Michigan (see B. H. Swales, WILSON BULLETIN, XXV, No. 1, March, 1913, pp. 31-32), and its occurrence in the interior of the United States is to be regarded as purely accidental. Mr. Beebe writes that he identified these birds by their "higher pitched notes" and by the fact that they were in a large flock. In the case of a bird that is extremely rare in the interior and that is so difficult to separate in life from the Common Tern, we consider that the record should not be accepted.

Western Yellow-throat (*Geothlypis trichas occidentalis*). Beebe—three seen at Newberry in 1909. These, Mr. Beebe writes, were "distinguished from *brachidactyla* largely on account of larger size". However, Ridgway (*Birds of North and Middle America*, part 2, p. 668) separates these subspecies mainly on color characters, reporting that the longest winged *occidentalis* measures but one millimeter longer than the maximum of *brachidactyla* and the longest tail measures but half a millimeter longer than in the eastern form. The normal range of *occidentalis* extends east only to the western Dakotas.

Chestnut-collared Longspur (*Calcarius ornatus*). Beebe—"Many thousands" seen. Stray individuals of this Great Plains species may be detected in Michigan in the future (there is no state record), but this sight record of thousands points very strongly to a confusion with the rather similar Lapland Longspur.—NORMAN A. WOOD, *Museum of Zoology, Ann Arbor, Mich.*

The 1933 Fall Migration at Cleveland's Public Square.—I found fewer birds this season at the Square than the past few years, being successful in identifying only fifteen species, none of them uncommon or unexpected here. In the period from September 1, with the arrival of a Redstart, until December 29, when a flock of Herring Gulls was seen, I made ninety visits and found native, wild birds on all but twenty-four days. The season was somewhat colder than normal, particularly in mid-November, when there was an unusual amount of snow. My records are as follows.

Species	First Record	Last Record	No. of Days Seen	Largest No. in one Day
Herring Gull	Dec. 29	.....	1	50+
Northern Flicker	Oct. 6	.....	1	1
Yellow-bellied Sapsucker	Oct. 6	.....	1	2
Eastern Robin	Oct. 26	.....	1	1
Eastern Hermit Thrush	Sept. 29	.....	1	1
Golden-crowned Kinglet	Oct. 25	.....	1	1
Black-poll Warbler	Sept. 29	.....	1	1
Northern Yellow-throat	Sept. 19	Oct. 7	5	2
Redstart	Sept. 1	.....	1	1
Tree Sparrow	Oct. 21	Oct. 23	2	3
White-crowned Sparrow	Oct. 2	Nov. 7	22	5
White-throated Sparrow	Sept. 11	Dec. 15	56	16
Lincoln's Sparrow	Sept. 26	Dec. 8	29	4
Swamp Sparrow	Sept. 27	Oct. 28	4	2
Song Sparrow	Sept. 25	Dec. 8	28	4

The maze of supports of a large sign-board erected in the Square for the NRA afforded an excellent refuge for several species, and at the same time made observations rather difficult. The Northern Flicker on October 6 flew around the Square two or three times, looking for a friendly haven, and then flew off without alighting. An interesting partial albino White-throated Sparrow stayed several days. The head, nape, throat and upper breast were white except for two short bits of the usual dark stripes appearing on the forehead and the nape. An interesting bit of bird psychology showed one day. I was watching a small group of English Sparrows, when every one of them suddenly cocked an eye upward. There was an Eastern Robin flying over about fifty feet above, and apparently its difference in aspect from the usual pigeons, Starlings, and sparrows brought immediate attention.—WILLIAM H. WATTERSON, *Cleveland, Ohio.*

Two Unusual Sight Records at Toledo, Ohio.—On February 25, 1934, a Glaucous Gull (*Larus hyperboreus*) was reported by Mr. and Mrs. Fred Stearns of Toledo, Ohio. The bird was seen in a patch of open water in the Maumee River (otherwise entirely covered with ice at that time) back of the Acme Power House, which stands on the banks of the river within the city limits of Toledo. On February 27, 1934, what was presumably the same bird was seen by Louis W. Campbell. This gull was feeding and resting in the small patch of open water back of the power house along with a large flock of Herring Gulls and several varieties of ducks. Conditions were such that it was possible to approach within 200 feet of the Glaucous Gull. Its size was arrived at by direct comparison with Herring Gulls and American Mergansers. As a further check, the size of the bill was also noted to eliminate both the Iceland Gull and an albino Herring Gull. The bird resembled the second year Glaucous Gull, as depicted on color plate V by Fuertes in the "Birds of New York", especially in the color of the bill.

On February 16, 1934, an adult Great Black-backed Gull (*Larus marinus*) was seen back of the power house mentioned above, by John Stophlet of Toledo, Ohio. On February 18, 1934, an immature Great Black-backed Gull was seen by Louis and Bernard Campbell on the ice at the rapids of the Maumee River, about one mile south of the village of Maumee, Ohio. Identification was made by direct comparison with both adult and immature Herring Gulls. Presence of black primaries eliminated the Glaucous Gull. The bird was pursued about a mile in an unsuccessful attempt to collect it. Throughout the chase, it was at all times possible to separate it from the flock with which it was flying.—Louis W. and Bernard R. Campbell, *Toledo, Ohio.*

On the Specimens of Fregata magnificens in the University of Iowa Museum.—In a recent article, "Frigate-Birds of the West American Coast" (*Condor*, XXXV, pp. 148-150), H. S. Swarth calls attention to the lack of specimens and measurements of the Frigate-bird in sufficient numbers to demonstrate accurately whether *Fregata magnificens* Mathews might be satisfactorily divided into various geographic races. The following data may prove of interest in furthering such a study.

The University of Iowa Museum contains a series of twenty-one Texas specimens of *Fregata magnificens*, secured by D. H. Talbot and his collectors during 1885 along the southeast Gulf Coast, and six Bahama specimens, which were secured by C. C. Nutting and E. G. Decker, during 1888 and 1893, respectively.

The series of Texas birds consists of four adult males, seven adult females, and ten in immature plumage, nine of which are females. Specimens were secured at various times during the summer of 1885 as follows: Two at Rincon, May 22 and 25; one at "Steam-boat Dug-out", June 6; eight at Matagorda Bay, June 7 and 8; eight at the "Shell Banks", July 4 and 5; and Two at Corpus Pass, August 1.

There is reasonable consistency in the coloration of plumage in the various individuals of the same sex and age. All of the adult males have wing-coverts of a uniform glossy black, there being no indication of a rusty bar on the lesser wing-coverts. There is a predominately purplish sheen to the lanceolate scapulars and interscapulars, but the general effect varies considerably, depending upon the extent of the greenish reflections (which normally occupy the terminal third of the feather in these specimens), and the direction, with regard to the light, in which the specimen is held for examination. The head and throat of the adult female are black; the feathers of the breast are white, as well as those extending on the flanks. In the folded wing of the females the brownish feathers of the lesser wing-coverts form a conspicuous bar. The color of this bar varies somewhat between rusty-brown and gray, depending upon the amount of wear on the lighter margins of each feather. In the white-headed immatures this bar along the wing averages lighter than in the females.

The following Texas specimens of *Fregata magnificens* are now in the University of Iowa Museum. All measurements (in millimeters) were recently taken by the writer. The wing was measured across the chord; the tail from the insertion of the central tail feathers to the tip of the longest rectrix. Besides the measurements of exposed culmen, the distance from the angle of the jaw to the tip of the upper mandible was taken.

FOUR ADULT MALES

Museum No.	Locality	Date	Wing	Tail	Exposed Culmen	From Angle of Jaw
6282	Matagorda Bay	June 7	632.0	424.0	112.0	129.0
6269	Matagorda Bay	June 7	604 0	366.0[1]	107.0	123.0
6273	Corpus Pass	August 1	622.0	429.0	110.0	126.0
6267	Corpus Pass	August 1	612.0	403.0	105.0	120.0

SEVEN ADULT FEMALES

6278	Shell Banks	July 4	606.0	443.0	121.0	137.0
6270	Shell Banks	July 4	635.0	412.0	127 0	139.0
6274	Shell Banks	July	647.0	347.0[2]	124.0	141.0
6284	Matagorda Bay	June 7	646 0	389.0	125.0	136.0
6276	Matagorda Bay	June 8	642.0	418.0	118.9	134 0
6285	Matagorda Bay	June 8	653.0	369 0[3]	116.0	130.0
6295	Matagorda Bay	June	652.0	438.0	126.5	140.0

TEN IMMATURES (Nine Females)

6288	Rincon	May 22	626.0	381.0	108.0	118 0
6289	Rincon	May 25	636.0	403.0	110.0	116 0
6287	"Steam-boat Dug-out"	June 6	631.0	384.0	110.0	120 0
6280	Shell Banks	July 4	673.0	418.0	123.0	139.0
6272	Shell Banks	July 4	667.0	447 0	121 0	140 0
6266	Shell Banks	July 4	657.0	386.0	127.0	138 0
6265	Shell Banks	July 4	641 0	417.0	110 0	125.0
6275	Shell Banks	July 4	679.0	372.0[4]	118.0	131.0
6277	Matagorda Bay	June 8	585.0[5]	422 0	117 0	129.5
6271[6]	Matagorda Bay	June 8	631.0	383.0[7]	122.0	135.0

Data on five additional Texas specimens formerly contained in the Talbot collection are recorded in a thesis, "Variation of Birds in the State of Nature", written by Frank Russell at the University of Iowa in 1892. Measurements of wing, tail, and exposed culmen recorded by Russell in inches have here been transposed into millimeters. It is not possible to state whether all specimens were in adult plumage.

ONE MALE

Museum No.	Locality	Date	Wing	Tail	Exposed Culmen
6268	Corpus Pass	August 2	622.3	457.2	109.2

FOUR FEMALES

6286	Matagorda Bay	June 8	609 6	482.6	116.8
6282	Matagorda Bay	June 8	622.3	464.8	114.3
6279	Shell Banks	July 4	609.6	363.2	119.4
6281	Shell Banks	July 16	673.1	381.0	106.7

The series of six Bahama specimens consists of four adult males, an adult female, and one immature. The writer could detect no appreciable difference between the Bahama female and immature and the Texas specimens. The lan-

[1]Longest rectrices broken.
[2]Outer rectrices lacking.
[3]One outer rectrix broken; others lacking.
[4]Rectrices not fully grown out.
[5]Primaries badly worn.
[6]Sex not recorded.
[7]Rectrices somewhat worn.
[8]Outer rectrices not grown out.
[9]Outer rectrices lacking.
[10]Outer rectrices not grown out.

ceolate scapulars and interscapulars of the Bahama males lack to a considerable extent the greenish-purple sheen noted in the Texas material. The disposition of what small amount of color remained appeared to differ slightly from the Gulf Coast skins. The inner web of each feather is purplish, while the outer web is somewhat more greenish. The measurements of these specimens are as follows:

FOUR MALES

Museum No.	Locality	Date	Wing	Tail	Exposed Culmen	From Angle of Jaw
2287	Egg Island	June 8, 1888	648.0	342.0[8]	114.0	127.5
2302	Spanish Wells	June 25, 1888	628.0	322 0[9]	110 0	124.0
15814	Bahamas	Summer, 1893	589.0	412.0	109.0	124.0
15816	Bahamas	Summer, 1893	616.0	312.0[10]	107.0	121.0
		ONE FEMALE				
15812	Bahamas	Summer, 1893	634.0	426.0	122.0	128.0
		ONE IMMATURE				
15815	Bahamas	Summer, 1893	611.0	401 0	110.0	125.0

—PHILIP A. DUMONT, *Des Moines, Iowa.*

Some Uncommon Birds Taken Near Toledo, Ohio.—Holboell's Grebe (*Colymbus grisegena holboelli*). Two of these birds were found alive several miles from a lake or stream and turned over to us for preservation. Of these one was a female found February 10, 1934, by Thomas English in Oregon Township, Lucas County, Ohio; the other a male found on February 15, 1934, by Thomas Cook in Swanton Township, Lucas County. The skin of the female found on February 10 will be donated to the Ohio State Museum at Columbus, Ohio.

King Rail (*Rallus elegans elegans*). Two, a male and female, caught on February 8, 1934, in traps set for mink in Erie Marsh, Monroe County, Michigan, were turned over to us. The skins were presented to the University of Michigan, Museum of Zoology, at Ann Arbor. On February 11, 1934, another was collected in a marsh in Jerusalem Township, Lucas County, Ohio. The skin, prepared by Milton B. Trautman, was given to the Ohio State Museum at Columbus.

Parasitic Jaeger (*Stercorarius parasiticus*). On December 3, 1933, a dead immature Parasitic Jaeger was found on Little Cedar Point, Jerusalem Township, Lucas County, Ohio. The bird had been shot some time before and was badly decomposed. The wings, tail, feet, and tarsi, however, were preserved and sent to the Ohio State Museum at Columbus, for confirmation.

Franklin's Gull (*Larus pipixcan*). On December 3, 1933, a female Franklin's Gull, somewhat oil soaked but still able to fly, was collected in Washington Township, Lucas County, Ohio. This skin was presented to the Ohio State Museum at Columbus.

Prairie Marsh Wren (*Telmatodytes palustris dissaëptus*). A male Prairie Marsh Wren was taken on February 4, 1934, in a cat-tail marsh in Jerusalem Township, Lucas County, Ohio. This species was reported as wintering sparingly in this vicinity in the *Auk* XLIX, July, 1932, pp. 352-353), by Louis W. Campbell.

Brewster's Warbler (*Vermivora leucobronchialis*). A male Brewster's Warbler was collected on June 14, 1933, in Spencer Township, Lucas County, Ohio, as a matter of record. This hybrid is found regularly in Lucas County in the Oak Openings. The skin was presented to the Ohio State Museum at Columbus.

Giant Redwing (*Agelaius phoeniceus arctolegus*). On January 21, 1934, a male Giant Redwing was taken in Jerusalem Township, Lucas County, Ohio. The skin was presented to the Ohio State Museum at Columbus. A pair of Giant

Redwings, collected January 27, 1934, in Erie Township, Monroe County, Michigan, was presented to the Museum of Zoology, University of Michigan, at Ann Arbor.

Common Redpoll (*Acanthis linaria linaria*). A flock of about 125 Common Redpolls was discovered on November 19, 1933, in Jerusalem Township, Lucas County, Ohio. The last one was seen on February 25, 1934. Several specimens taken for the Ohio State Museum at Columbus proved to be all the one form. On January 27, 1933, a male Common Redpoll was taken from a flock of fifteen in Erie Township, Monroe County, Michigan, and presented to the University of Michigan, Museum of Zoology, at Ann Arbor.—Louis W. and Bernard R. Campbell, *Toledo, Ohio.*

Notes on Some Birds Found in Winter Near Wheatland, Wyoming.—The records here given were obtained on four trips to the Wheatland vicinity, with a total of seven days' work in the field. My judgment of what was unusual was influenced by a much larger amount of work that had been done in adjacent areas. The first trip was made on December 25, 1927, when twenty-one species of birds were seen, the following being unusual in Wyoming: Marsh Hawk (*Circus hudsonius*), Prairie Falcon (*Falco mexicanus*), Richardson's Pigeon Hawk (*Falco columbarius richardsoni*), Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), and Rusty Blackbird (*Euphagus carolinus*). The Marsh Hawk, Prairie Falcon, and Yellow-headed Blackbird were seen again on February 26, 1928, and three Brewster's Blackbirds (*Euphagus cyanocephalus*) were also seen the same day. The Yellow-headed Blackbird was seen in the same vicinity both times, and apparently it spent the winter near a farmhouse where chicken feed, an open corn crib, and a family with a love of birds provided it and some red-wings (*Agelaius phoeniceus* subsp.) with food and protection.

In December, 1928, a third visit was made, and on December 24 these unusual birds were seen: Prairie Falcon, Sparrow Hawk (*Falco sparverius* subsp.), and Long-billed Marsh Wren (*Telmatodytes palustris* subsp.). The last trip was made to a reservoir on the Wheatland Flats, on February 4, 1934. At this time the weather was quite mild and no traces of ice or snow were seen. Over 300 ducks were on the reservoir, about fifty being Redheads (*Nyroca americana*), two being Red-breasted Mergansers (*Mergus serrator*) and the rest Common Mallards (*Anas platyrhynchos platyrhynchos*). The first two were unusual winter records.

The records given above are the only mid-winter records for the state for the Yellow-headed Blackbird, Rusty Blackbird, and Redhead. I have only two mid-winter records for the state for the Red-breasted Merganser, Richardson's Pigeon Hawk, and Long-billed Marsh Wren.

There is a second dubious mid-winter record for the Redhead for the state. Knight (The *Birds of Wyoming*, p. 35) makes this statement: "They have been taken at Hutton's Lakes as late as January 10, 1896." This evidently is an error in copying or printing, because Hutton's Lake freezes over even in the mildest winters, and the weather for December, 1895, was very severe. The statement is made in such a way as to indicate a late autumn date was intended, probably November 10, 1896. The record for 1934 was during the mildest winter in the history of this region, at an altitude of about 2500 feet lower than Hutton's Lake. —Otto McCreary, *Laramie, Wyo.*

A Double Nest of the Baltimore Oriole.—At Eureka, Woodford County, Illinois, during the winter of 1911, I found a strange double nest of the Baltimore Oriole (*Icterus galbula*) in a tree in our front yard. At least one of the nests had been occupied by a pair of birds during the preceding summer, but my bird

FIG. 3. Nest of the Baltimore Oriole referred to in Mr. Sutton's note. From a drawing by George Miksch Sutton.

notes were not kept very accurately in those days, and it is barely possible that two pairs of birds were there. During the summer I did not climb to the nests, since I did not know in which tree the birds had built; but in early winter I was attracted by a bulky mass, which at a distance had the appearance of a gray, weatherbeaten piece of cloth.

Both nests were neatly finished; they were inextricably interwoven and swung between two upright branches. I do not know what species of tree it was, though I think it was a boxelder. None of the trees in the yard had drooping branches

like those of the American elm. Much of the nest material was twine. The lining was principally of horsehair. The drawing was made years ago, and while it is crude, it may bear the marks of authenticity more satisfactorily than any impression I might now reconstruct from memory.

I have seen a good many two-storied nests of the Red-eyed Vireo and Yellow Warbler; but I know of no other instance where nests of this sort were joined in this manner.

If by any chance two pairs of birds made the double nest, their sociability may reflect the colonizing habit of some of the tropical Icterids such as *Zarhynchus*. If but one pair built the two nests, is it not possible that the male used one as roosting quarters? In any event the building of these nests between *upright forks*, in the manner of many Orchard Oriole nests which I have seen, is an interesting and unusual deviation from the usual custom of this species of swinging the pouch from a drooping bough.—GEORGE MIKSCH SUTTON, *Ithaca, N.Y.*

The Wood Ibis Observed in Southern Indiana.—Robert Ridgway, in his "Descriptive Catalog of the Birds of Illinois", published in 1913, gives the following range of the Wood Ibis (*Mycteria americana*): "The whole of tropical and most of warm temperate America, north to New York (casual), Ohio, Indiana, Wisconsin, Colorado, Utah, Nevada and California, south to Equador and the Argentine Republic." Ridgway also mentions several sight records of the Wood Ibis in the lower Wabash Valley, and adds that the species is an irregular summer visitor to southern Illinois. A. C. Bent, in his "Life Histories of North American Marsh Birds", mentions that the species has been recorded in late summer from near Bicknell and Terre Haute, Indiana.

A partial survey of the literature has failed to disclose any recent Indiana records for the species, so it would seem of value to record the following experience. The writer, in company with Mr. Robert H. McCormick, was engaged in some biological studies in southwestern Indiana during the early part of September, 1930. On September 5 we came to Hovey Lake, situated about twelve miles south of Mt. Vernon, Posey County. Posey is the extreme southwestern Indiana county, being bounded on the west by the Wabash River and on the south and east by the Ohio River. Posey Lake averages about ninety acres in size, is only a short distance from the Ohio River, and during flood time is connected by backwaters with that stream. A border of cypress trees with expanded bases and "knees", surrounds and in many places extends out over the waters of the lake. Numerous pecan trees, a neighboring cane break, and plants of many other species found in the vicinity, create an atmosphere which would lead one to believe himself many miles farther south in the Mississippi Valley.

Due to drouth conditions, the lake was at a very low level at the time, and so shallow that it was difficult to approach the numerous mud bars to identify the occasional flocks of shore birds feeding there. About a dozen Great Blue Herons (*Ardea herodias herodias*), a solitary American Egret (*Casmerodius albus egretta*), and five Little Blue Herons (*Florida caerulea caerulea*) in white plumage, were feeding along the margins.

Twenty-two Double-crested Cormorants (*Phalacrocorax auritus auritus*), a species which is said to sometimes nest in the county, still remained at the lake. Most of them were perched on the dead tops of bald cypress trees growing in the shallower portions of the lake. Many perched awkwardly, drying their outstretched wings in the bright sunshine, as Turkey Vultures frequently do in the

early morning. Others were engaged in fishing activities in different parts of the lake. Seven birds in one tree permitted us to approach with our boat until almost immediately beneath them, giving us the opportunity to take numerous photographs.

FIG. 4. Wood Ibises are perched in tops of the Cypress trees. Photograph by L. E. Hicks.

Our attention, however, was soon attracted to seven large, lightcolored birds resting in a tall cypress snag about three hundred yards down the lake. A hasty examination through the binoculars proved them to be the Wood Ibis (*Mycteria americana*). As we watched, eleven more birds appeared on the horizon and approached until nearly overhead, flying at a great height, yet exhibiting plainly

the black of the tail and wing tips. Then, in long swooping curves, the birds began their descent, tacking back and forth in long graceful swoops and curves, spiraling lower and lower with each change of direction, until within a hundred feet of the lake surface. Here the glide was flattened out and these large birds, appearing immense now at close range, flapped to the tops of a half-dozen snags by slow easy beats of their wings, alternating with an occasional short sail.

From the boat we kept the birds under observation through our binoculars for more than an hour. Most of them kept perfectly motionless except for the restless twitching of the necks, giving us an opportunity to observe their ugly unfeathered "flintheads", and the oddly positioned bill. Many sat quietly, balanced upon one leg, in a dejected, hunch-backed position, breasts to the strong sunlight and dozing in the heat of noonday. Observation told us, however, that the ibises were very much aware of our presence and actually alert in spite of their sleepy appearance.

Gradually, we drew nearer, stopping occasionally to take another photograph at the closer range. Several times our boat stranded in the muddy bottom and the activity involved in getting under way again, usually caused one or two birds to take alarm and fly. At last only three birds remained. Already we were closer than 100 yards to our quarry, now only 80, now 60, now 50. Suddenly, when we were scarcely 100 feet distant, the trio rose from their perches with powerful springs which caused the branches of the old cypress tree to vibrate, and with rapid flaps of the wings and legs dangling, rose high above the tree tops, moving in their gyrating flight slowly to the far side of the lake to join the others in the tops of another group of cypress snags.

Later we visted Mr. Robinson, caretaker of the lake, who told us that our birds with the bald heads had been present at the lake for at least two weeks. On September 1, he related, one of the birds with an injured wing was seen to run across the highway and was struck but not further injured by the wheels of the automobile that he was driving. The bird was captured and kept in a garage for three days after which it managed to escape, successfully resisting with vicious thrusts of the long bill all efforts of a dog to grasp it and eventually succeeding in evading its tormentor, wading to safety far out in the deeper waters of the lake.—Lawrence E. Hicks, *Ohio Division of Conservation, Columbus, Ohio.*

An Early Morning Mixed Migration.—On August 24, 1931, at 6 A. M., I witnessed an interesting morning migration. A large loose flock of common Kingbirds (*Tyrannus tyrannus*) flew over, and smaller flocks of the same species continued to come for nearly an hour. Arkansas Kingbirds (*Tyrannus verticalis*) also came scattering along with the first species. Family parties of Baltimore Orioles (*Icterus galbula*) were also in flight, and were often mixed in with the Kingbirds. The strangest part, however, was the presence of an occasional Red-headed Woodpecker (*Melanerpes erythrocephalus*), following closely along with the other birds and going in the same southeast direction. This mixed company of four species were thus apparently migrating together, and on the best of terms. Estimates were as follows: Kingbirds, 1500; Arkansas Kingbirds, 75; Baltimore Orioles, 400; and about two dozen Red-headed Woodpeckers. By 7 A. M. the flight was over, and the morning migration was ended.—William Youngworth, *Sioux City, Iowa.*

A Curious Tern Accident.—On April 22, 1933, at 4:30 P. M., I was coming up the river about five miles below the city, and seeing something white draped across the top of an old piling, crossed to the north side to investigate. It proved to be a Caspian Tern (*Hydroprogne caspia imperator*), with its bill firmly driven into the top of the partially decayed and spongy piling. I had to twist the bird's head considerably before the tapered bill could be withdrawn. One inch from the end of the upper bill the fibers of the horny sheath were broken, as the mandible had bent, and this mark still (March 16, 1934) shows on the prepared skin.

On manipulating the wings before skinning, a gush of water came from the lungs. The plumage was immaculate, except for a slight stain, where the breast had rested against the muddy pile.

The tide at this time was six feet above local low water, and the piling lacked one foot of being covered. I had quite accurate knowledge that the tide had been eight and a half feet above local low water, at about 8:00 A. M., some two miles farther up river. So at no time could the piling have been covered more than one and a half feet.

It seems likely that the tern had seen the dark piling top through the swirling yellow water, or that a fish had actually swam over the top, and the bird in diving had fastened itself and drowned.

Gulls, with their competition of numbers and the diversity of their ways of feeding, are prone to all manner of accidents, such as the Herring Gull (*Larus a. smithsonianus*) which, a year or so ago, picked up a Gillette razor blade as it was thrown into the water alongside of the dredge, and swallowed it, to fly away a little distance, alight on the water and die within a few minutes. But this is the first similar tern accident to come to my notice.—Ivan Tomkins, *U. S. Dredge Morgan, Savannah, Ga.*

The Blue-gray Gnatcatcher Moving Its Nest.—During 1932 and 1933, several notes regarding the Blue-gray Gnatcatcher's habit of moving its nest were published in the Wilson Bulletin. Still another instance may not be amiss, as it contains one fact that is at least unusual. On April 30, 1934, I found a nest about half finished in an old orchard near Lexington, Virginia. It was saddled on a limb about twelve feet up in a small apple tree. After watching the work of construction, in which both the birds shared, I climbed to the nest. The birds did not seem to be particularly alarmed. On May 5, Rev. John Grey found another nest in an apple tree about fifty yards away. As I had seen only one pair in the orchard, I investigated and found that the first nest had disappeared, only a few scraps of it being left. It seems evident that the first nest had been destroyed and its material utilized in the construction of the second. On May 11, the second nest contained two eggs. The novel point referred to about this second nest is that it was not saddled on a limb, but set between three small forks of an upright crotch, in the manner of the nests of the Yellow Warbler and Redstart. The Blue-gray Gnatcatcher is an uncommon summer resident here.—J. J. Murray, *Lexington, Va.*

ORNITHOLOGICAL LITERATURE

Songs of Wild Birds. By Albert R. Brand. Published by Thomas Nelson & Sons, New York. 1934. Pp. 1-91. Price, $2.00.

The book contains one or two chapters on the subject of bird song in general, and about thirty-four pages are devoted to the descriptions of songs of particular birds—all interesting enough. The feature of the book, however, is the accompanying phonograph records of wild birds' songs, which are carried in a pocket on the cover. A year or two ago we learned indirectly that a young man at Cornell University was working on the reproduction of bird songs by modern mechanical methods. In the spring of this year Dr. A. A. Allen made a lecture tour through the middle west exhibiting the results of these efforts. Just a few weeks later Mr. Brand's book with the phonograph records was placed upon the market. The fact of the matter is that men have now recorded mechanically the songs of wild, free birds as they sang in their native haunts. Most of our readers may not care for a detailed explanation of the mechanical devices used in this work, even if we could present it (but we think a little more of a description in the book itself would have been acceptable). However, an enlarged microphone is set up as near as possible to the singing bird. The sound waves which fall upon the microphone are converted into electrical energy. The electrical waves are then amplified and transformed into light waves. These light waves are then photographed on the films. The film is developed and can be reproduced by the movie projector onto the light screen or reconverted into sound. Of course the making of a phonograph record is an additional process. It is to be noted, however, that the phonograph record reproduces the bird's own voice, which has never been accomplished before, we believe. Thirty-five wild bird songs are recorded on the two record disks which accompany this book. A few of the songs are rather weak, perhaps because of the distance of the birds; others are loud and clear. The Bobolink song is one of the best, and lacks none of the vivacity of the living song. The Whip-poor-will's song is reproduced with such fidelity that one might close his eyes and imagine himself in the haunts of the bird. Perhaps we should again assure the reader that the records are reproductions of the bird's voice, not of whistled imitations by some clever human. These records alone are worth the price of the book, and we can cheerfully recommend them.—T. C. S.

The Birds of Dutchess County, New York, from Records Compiled by Maunsell S. Crosby. By Ludlow Griscom. Trans. Linn. Soc., N. Y., III, 1933, pp. 1-184. Price, $2.00. (Address Sec. Linnaean Society, W. 77th and Central Park, N. Y.).

Mr. Griscom has done another very creditable piece of work in the compilation of this local list. An introduction covering sixty-seven pages, and divided into eight chapters, precedes the systematic list. Species of hypothetical occurrence are not assembled into a separate list, but are enclosed in brackets in the body of the list. Since the note-books of Mr. Maunsell S. Crosby furnished the material for this report it is fitting that a portrait of Mr. Crosby and a picture of his home, which we take to be a country estate, be included. Chapter X is a bibliography of Dutchess County ornithology which is, doubtless, intended to include all of Mr. Crosby's own writings; two titles in the Wilson Bulletin for 1925 were overlooked.—T. C. S.

1. Legperioden eierproductie bij eenige Wilde vogelsoorten, vergeleken met die bij hoenderrassen. By D. Tollenaar. Mededeeling 23 van de Landbouw Hoogeschool. Wageningen. 46 pp. 1922.
2. Verslag van het ornithologisch onderzoek 1925. By G. Wolda. 24 pp., 1926 .
3. Verslag van de ornithologische afdeeling over het jaar 1928. By G. Wolda. 27 pp., 1929.
4. Verslag van de ornithologische afdeeling over het jaar 1929. By G. Wolda. 20 pp., 1930.
5. Verslag van de ornithologische afdeeling over het jaar 1932. By G. Wolda. 20 pp., 1933.

   Numbers 2-5 published by the Plantenziekenkundige Dienst, Wageningen.
6. Bijdrage tot de Biologie en de Ecologie van den Spreeuw (*Sturnus vulgaris* L.) gedurende zijn voortplantingstijd. By H. N. Kluijver. 145 pp., 1933. Veenman & Zonen, Wageningen.
7. Akklimatisierung und Deklimatisierung. Resultate ornithologische Untersuchungen in den Jahren 1907-1923. By G. Wolda. Genetica, V, pp. 497-526, 1923.
8. Akklimatisierung und Deklimatisierung, II. By G. Wolda. Genetica, IX, pp. 157-216, 1927.
9. Interperiodizitat. By G. Wolda. Genetica, XI, pp. 453-464, 1929.
10. Het Akklimatiseeren van Vogels, met de resultaten eener verglelijkende anthropologische studie. By G. Wolda. Natura, December, 1932, 19 pp.

For a number of years the Phytopathological Service at Wageningen, Holland, has been carrying on investigations on the nesting of birds, particularly of Titmice, in 1932 having some seventy-five coöperators and records of 3,854 broods for that year alone. Five species of Titmice were responsible for 2,623 of these sets, Starlings for 412, and Redstarts (*Phoenicurus phoenicurus*) for 252. These Titmice lay astonishingly large sets, the Great Tit (*Parus major*) for instance *averaging* 10-11 eggs in a set, while as high as 18 to 21 living young of the Blue Tit (*Parus coeruleus*) have been recorded (4, p. 5).

Many papers have been published on birds by this Station—twenty-five being listed in the latest report (5); of these seven have been sent to me (Nos. 1-6, 10). Three others of Wolda's papers (7, 8, 9) I have been able to consult in the library of the Ohio State University. Tolenaar's paper (with a three page summary in English) is based on records from 1913 to 1920. Kluivjer's admirable study on the biology of the Starling I have reviewed elsewhere (*Bird-Banding*, 1933, pp. 209-210); but several of his findings are of importance in comparison with these other papers. Wolda is the most voluminous writer, bringing out a yearly report on the results of the Station's investigations, besides writing at length of his "acclimatization" theory.*

The time of beginning to lay. Tolenaar, calculating from the temperature of "the decade comprising the commencing-day of the laying-period of the species" decided that there is no direct effect of temperature, but that in early springs "the 'laying-threshold' is sooner crossed owing to the earlier appearance of insects" (1, p. 43). Kluijver (6, pp. 42-46) and Wolda (10, pp. 2-3), taking the

*Heer Wolda writes me that "*Akklimatisierung und Deklimatisierung* is now being published in four volumes and is available at my address at the price of fl. 6.50 Dutch currency."

mean temperature of April, decide that the start of laying is definitely related to temperature.

There are a great many interesting data given by the latter in charts (especially in 2, figs. 2 and 4, and 3, pp. 9, 15-17): here we see warm waves bringing many birds into laying five to seven days later, and cold waves causing breaks in activity after approximately the same length of time. In a few cases where the set had been started, severe cold stopped laying for one or more days; in some cases a number of the eggs were infertile, and in still others the birds deserted (2, p. 6).

Length of the nesting season. All three authors agree that an early beginning is correlated with a late ending, since many of these titmice raise two broods when the spring is early, but only one when it is late. Starlings ordinarily raise but one brood in Holland, but "an early beginning of the first brood (due to high temperature in April) is followed by a relatively large number of second broods" (6, p. 47).

How general this is among birds I do not know. It certainly has not been true with the Song Sparrow (*Melospiza melodia*)—normally a three-to-four-brooded bird.

Size of sets. As a rule the first set is the largest, but with the Coal Titmouse (*Parus ater*) that regularly lays three sets, the middle one is usually the largest (2, p. 11). Wolda states this is a fact for all three-brooded birds (5, p. 17), but this does not agree with my experience. The Blackbird (*Turdus merula*), Song Thrush (*Turdus philomelos*), Mistle Thrush (*Turdus viscivorus*), and Sky Lark (*Alauda arvensis*) reach a maximum in May, the March and April sets being smaller (1, p. 45). Tolenaar considers this a reflection of scarcity and abundance of food.

According to this writer, sets are largest during favorable years (1, p. 23) because of food conditions. Wolda (9, p. 455) says sets are larger in *unfavorable* years, because most of the birds lay but once; however in very unfavorable years the largest sets are absent.

It is evident that this problem is far from settled. Does the size of sets depend on the amount of food available, or on a direct influence of temperature during the laying period, on the age of the birds in the population, or on what? These Dutch experimenters are well situated to undertake a thorough-going study of this matter.

The effect of environment. This subject is worked out rather elaborately by Wolda (3, pp. 18-25) with *Parus major* in regions of coniferous and deciduous woods. In the lormer locality the birds started nesting slightly earlier and ended decidedly later, because more second broods were attempted; the average size of the first set was 10.1 eggs, of the second, 8.7 eggs; 83 per cent of the young that were hatched were raised, i. e., 64 per cent of the eggs laid. In the other district the average size of the first set was 10.6 eggs, of the second, 7.7; 89 per cent of the young that hatched reached maturity—67 per cent of all the eggs laid.

Tolenaar (1, p. 37) gives a chart showing the early start and late ending of the Blue Tit's nesting season in a region where its abundance reflects optimum conditions, and the late start and early ending in another region where it is uncommon. The Great Tit on the other hand is common in both places and started and ended nesting at the same time in the two localities.

Success of nesting. A number of other figures are given for the success of nestings, especially in the report for 1928. In Bilderberg in forty nest boxes fifty-one sets of 401 eggs were laid by five different species; of these 288 hatched (71 5 per cent) and 260 were fledged (64.8 per cent). During the previous year, of 351 eggs laid 240 young were raised—67.5 per cent (3, p. 8).

At Driebergen the number of sets laid by twelve species of hole-nesting birds ranged from thirty-nine in 1922 to 162 in 1928. The number of successful broods varied between 61 and 76 per cent (3, p. 9, 10).

At Hooge Veluwe bij Hoenderlo layings of fourteen species rose from 248 in 1921 to 523 in 1928; the lowest number of eggs laid was 850 in 1922 and the highest 2600 in 1925. From 23 to 39 per cent of sets were wholly unsuccessful—the other six years yielding 34 or 35 per cent loss of broods. Many desertions (10-12 per cent) are due to the examination of the boxes.

Frater J. Verschueren at Stein reported 609 young raised from 1103 eggs laid in his boxes in 1929—55.2 per cent of success; considerable trouble was experienced with sparrows, both House and Tree Sparrows, I suppose.

Acclimatization and declimatization. This is an elaborate theory which Wolda applies both to birds and man. He believes that a bird with a long breeding season with sets of equal size is becoming acclimatized, while one with a short season laying typically a single clutch of many eggs with occasionally a much smaller second set is becoming "declimatized" and will disappear. The former are usually large birds, strong singers, with marked sexual dimorphism and dark eggs (7, p. 517).

The author makes many categorical statements on subjects that are still far from settled. For instance:

In very favorable years (meteorologically) the number of broods that perish is large, in unfavorable years small, for under the former circumstances eggs are laid that lack the necessary vitality for successful development (9, p. 455). However, in another place he says that in unfavorable years the sets are large and food is scarce, so that a high mortality results (10, p. 7). Earliest and latest layings tend to abnormality and replacement broods are inferior, for these do not correspond with the regular periodicity of the organisms (9, p. 455). Small layings have more chance of success than large ones, hence species that make several small layings are most abundant (10, p. 5).

My own experience does not support any of these assertions; as for the last sentence, how about Starlings and Crows both here and in Europe? I must confess that I have not carefully studied all the tables and graphs of human birth rates and death rates, but to judge from these sample statements on the breeding behavior of birds, the theory does not appear to me a promising path to follow in the solving of biological problems.

These ornithologists have the great advantage of a large population of birds that come readily to nesting boxes, and they are in a position to investigate many vital problems in the breeding biology of birds, especially if banding is generally adopted. They are doing important work, which unfortunately is almost unknown outside of Holland. It would be a splendid thing if a report on the results of the twenty-four years of study should be published in English or German, letting the facts speak for themselves and not trying to fit them into any preconceived theory.—Margaret M. Nice.

A Malaria-like Disease of Ducks Caused by Leucocytozoon anatis Wickware. By Earl C. O'Roke. Bull. No. 4, Univ. Mich. School Forestry and Conservation, Ann Arbor, Mich., 1934. Pp. 1-44, pls. I-V. Price, 25 cents.

Dr. O'Roke investigated a disease among wild and domestic ducks in northern Michigan. He found that a protozoan *Leucocytozoon anatis* Wickware was responsible. He also found that the disease was transmitted by the black fly (*Simulium venustum*). In some areas the ducks were 100 per cent parasitized, in other areas no evidence of the parasites was found. The presence or absence of the black fly determined whether the area was parasitized or not. Young parasatized ducklings found in a marsh where the black fly does not occur would be evidence that the birds had not been bred locally, but were migrants. Young ducks which have been infected, with subsequent recovery, are likely to be stunted and weak. Many recovered ducks act as carriers to infect the black flies in the next season, the latter to spread the infection during the summer season. Dr. O'Roke has made some studies also on the control of this disease. No great success was obtained in the medicinal treatment of the disease. The drugs used were plasmoquin, quinine dihydrochloride, and quinine sulphate. However, control through management was found to be practical in domesticated ducks. No suggestion was made for control in wild ducks.—L. W. Wing.

[Editor's Note. With reference to Dr. O'Roke's work we might suggest experimentation with Atabrine (Winthrop) in addition to the other drugs used. Atabrine has been found to have a remarkable effect in destroying the malaria parasite in the human body (see a report by Appelbaum and Gelfand in Amer. Med. Journ., May 19, 1934, p. 1664), and might have a similar effect on other protozoan parasites].

Birds of Nunivak Island, Alaska. By Harry S. Swarth. Pacific Coast Avifauna, No. 22, March, 1934, pp. 1-64, 4 figs. Price, $2.00 (Address W. Lee Chambers, Bus. Mgr. Cooper Ornith. Club, 2068 Escarpa Drive, Eagle Rock, Los Angeles Co., Calif.).

This report is based chiefly upon material collected in 1927 by the late Cyril Guy Harrold on Nunivak Island, in the Bering Sea. This region is Nearctic, but is so close to the Palaearctic region that species from the latter would be expected, and several were found. The paper is a contribution to distributional ornithology.—T. C. S.

Report on the Food of Five of Our Most Important Game Ducks. By W. F. Kubichek. Ia. State Coll. Jr. Sci., VIII, No. 1, 1933, pp. 107-126.

The five ducks here reported upon are the Redhead, Canvas-back, Ring-necked Duck, Greater and Lesser Scaup Ducks. The ducks were collected from most parts of their breeding range. The study is based on the stomach contents of 3,127 birds. The animal food consisted of mollusks and insects. The amount of insects taken was quite small, but the season in which the specimens were collected may partially account for this. The two scaup ducks consumed relatively large quantities of mollusks (mostly snails, but some bivalves). The suggestion is made that mollusks may have been taken for grit in lieu of gravel and sand, but the percentages and numbers of shells in some of the cases was quite convincing evidence that they were taken for food.

The most important plant groups found in the stomachs were: wild celery and its allies, pond weeds, grasses, including wild rice, algae, including *Chara*, sedges, arrowhead (Wapato), and water lily. The results of this study indicate

that the wild celery, or eel grass (*Vallisneria*) is not as important a duck food as generally supposed. A useful tabulation of percentage data is given, showing at a glance the relative quantities of various foods in this examination of the five species.—T. C. S.

HISTORY AND LIST OF BIRDS OF MIDDLESEX COUNTY, ONTARIO. By W. E. Saunders and E. M. S. Dale. Trans. Royal Canad. Inst., XIX, Pt. 2, 1933, pp. 161-248+index.

This list includes 267 species with five additional species considered to be of hypothetical occurrence. The species are well annotated, giving one a fairly definite conception of their status in this locality. Plenty of work has been done in this region, but only two or three lists have been heretofore published. Trinomials are freely used and, no doubt, specimens were at hand to substantiate all such enumerations. An index without folio numbers is provided.—T. C. S.

A SYSTEMATIC CLASSIFICATION FOR THE BIRDS OF THE WORLD, REVISED AND AMENDED. By Alexander Wetmore. Smithson. Misc. Coll., Vol. 89, No. 13, 11 pp.

Early in 1930 Dr. Wetmore published a similar classification in the Proceedings of the U. S. National Museum (Vol. 76, Art. 24). This scheme is now superseded by the present one.—T. C. S.

A REVISED LIST OF THE BIRDS OF SOUTHWESTERN CALIFORNIA. By George Willett. Pacific Coast Avifauna, No. 21, 1933, pp. 1-204. Price, $4.00 (Address W. Lee Chambers, 2068 Escarpa Drive, Eagle Rock, Los Angeles Co., Calif.).

After a period of twenty years the region named in the title is presented with a revised bird list by the author of the earlier one. The revision was needed because of advances in ornithological knowledge, encroachment of civilization, and changes in nomenclature. It is not often that an author is thus permitted to revise his own list after such a length of time. The revised list includes 446 species and subspecies, which are distributed by families and by orders, as shown on page 8. The annotations under each form deal with the status only, with liberal references to the literature. Twenty-nine forms are placed in a separate list.—T. C. S.

It is announced that the regular edition of Dr. Thos. S. Roberts' two-volume "The Birds of Minnesota" is exhausted (except in the deluxe binding at $25). But an abridged edition is now offered which contains the ninety-five beautiful colored plates and a brief description of each of the two hundred and ninety-five birds shown on the plates. This book of 206 pages and plates may be obtained for $2.50; or the plates alone may be had in a portfolio for $1.50, from the University of Minnesota Press. The plates, it will be remembered, are reproduced from paintings by five of the leading American bird artists; and one plate is by the late L. A. Fuertes.

The *Florida Naturalist* for April contains a list of 140 birds for Merritt's Island in 1932 and 1933. A Magpie is reported for Palm Beach. A full statement of the business of the Florida Audubon Society completes this number. This magazine is edited by R. J. Longstreet, Daytona Beach, Fla.

The *Migrant* for December, 1933, has an article by Mr. B. Coffey on the Painted Bunting, and another on the nesting of the Duck Hawk by F. M. Jones. The volume index shows that four numbers were issued during 1933, aggregating fifty-two pages. The editor is Mr. George B. Woodring, 1414 Stratton Ave., Nashville, Tenn.

The *Chickadee* is published four times a year by the Forbush Bird Club at $2.00 (address the editor at 12 State St., Worcester, Mass.). The December number gives an interesting report on the destruction of birds by a newly erected beacon light on the summit of Mount Greylock. The beacon was erected as a war memorial, but its utility is not explained. During the last fall migration large numbers of warblers flew against the light and were killed. It is reassuring to find that the same news item was able to report that soon after the destruction was observed the light was shut off during the period of danger to the birds.

The *Raven* seems to arrive more regularly and frequently than any of the other local bird periodicals. It is edited and published by Dr. J. J. Murray, Lynchburg, Va. The March number contains a report of the fourth annual meeting of the Virginia Society of Ornithology, at Alexandria. Several distinguished guests from Washington were on the program. The old officers were re-elected for another year.

A new mimeographed monthly periodical is announced under the title, "The Night Heron", and is edited by John O. Felker, 8 Fair Oaks, St. Louis County, Mo. The subscription rate is 50 cents a year. The first three numbers, which we have seen, contain many interesting local items.

In the "Bulletin to the Schools of the University of the State of New York" for March 15, 1934, Dr. A. A. Allen reports a new bird for North America, the Trinidad Petrel (*Pterodroma arminjoniana*). The specimen was captured alive a few miles from Ithaca, N. Y. When the bird died it was prepared and submitted to Dr. R. C. Murphy, who made the identification. This issue of the magazine was devoted entirely to bird material.

The Yellowstone National Park Nature Notes for November-December, 1933, (Vol. X, Nos. 11-12) is devoted to the wild fowl of the Park. The status in the Park or the swans and ducks during recent winters is presented.

The *Flicker* is a mimeographed quarterly of the Minnesota Bird Club, and published in February, May, October, and December. The annual dues are $1 00, and may be sent to the Secretary-Treasurer, Mr. Kenneth Carlander, 4227 Harriet Ave., Minneapolis, Minn. The editor is Mr. Ralph Woolsey, 23 South Terrace, Fargo, N. D. The issue for December, 1933, contains a biographical sketch of Donald Fischer with a full page half-tone portrait; and also a paper on the field marks of Minnesota shore birds. The February, 1934, number presents a biographical sketch and half-tone portrait of Stanley Stein. Numerous notes of local interest appear in each issue.

The *St. Louis Bird Club Bulletin* is edited by Mr. N. R. Barger, 801 DeMun Ave., St. Louis. It is issued monthly except in July, August, and September, and is $1.00 per year. The issue for December, 1933, has a brief discussion of the problems of the relation of muskrats to birds in the sanctuaries controlled by the Audubon Association along the Gulf Coast. The February number includes a list of birds known to have a flight song. Fourteen American species are mentioned, viz., Bobolink, Purple Martin, Lapland Longspur, Sprague's Pipit, Lark Bunting, Vesper Sparrow, Purpls Finch, Goldfinch, Ovenbird, Louisiana Water-

Thrush, Maryland Yellow-throat, House Wren, Grey-cheeked Thrush, and Yellow-breasted Chat. Readers are invited to add to the list. In the March number three more were added, viz., Woodcock, Pectoral Sandpiper, and White-throated Sparrow. The Upland Plover and perhaps a number of other shore birds might also be added. This number also has an article on plants that are attractive to birds.

Volume III, Number 1 (which is apparently the April number for 1934, though not dated) is devoted to the memory of Mr. Otto Widmann. This number is printed, and carries a large halftone portrait of Mr. Widmann and two full pages of his remarkable hand-writing, the latter being a letter on the European Tree Sparrow in the vicinity of St. Louis. Many comments have been made about Mr. Widmann's writing. The letter which is reproduced was written when Mr. Widmann was 89 years old, and shows scarcely less precision than his penmanship of earlier years. There are also many appreciations, and some very interesting incidents are related. A page is given to the enumeration of Mr. Widmann's published writings, probably not complete. Copies of this Memorial Number may be had for 25 cents by addressing Miss Elizabeth Golterman, Educational Museum, 3325 Bell Ave., St. Louis. All students of ornithological biography will find it a treasured document. Mr. Widmann was a thorough and appreciative student of our native bird life, but above that he was a warm and sympathetic friend of people.

The *Snowy Egret* is issued occasionally by H. A. and R. E. Olsen, at 172 Manchester St., Battle Creek, Mich. Two numbers were issued in 1932 and apparently the same number in 1933. The winter number for 1933 (Vol. VIII, No. 2, and the last one we have seen) contains the following statement: "In the future it will be the policy of this paper to refer only to species, unless the sub-species has been specifically determined by measurements. That is, instead of printing eastern robin, we will only print robin, unless it has actually been determined that the bird is an eastern robin. We feel that the identification of sub-species by locality alone is inaccurate." This is a courageous and sensible step. Other ornithological magazines will be slow to follow suit because they are more firmly bound up with tradition and authority, from which it is very difficult to break away.

News from the Bird-Banders is issued quarterly by the Western Bird-Banding Association, at Berkeley, Calif. This periodical is not only well mimeographed, but usually contains one or more articles of general interest. The volume for 1934 is the ninth, and the January number contains several excellent reviews of recent work. The April number calls attention to the fact that there has arisen in England some criticism of the general inclusiveness of the territory doctrine. There is also a statistical report showing the number of each species banded in each state in 1933 within the area of the W. B. B. A.—a total of 37,174. Prof. O. A. Stevens reports that he has banded a total of 3,015 Harris's Sparrows at Fargo, N. D.

Inland Bird Banding News for December, 1933, and March, 1934, have been received. In the December number Mr. M. J. Magee presents some thoughts on the effect of environment on the color intensity in the plumage of the Purple Finch. The March number contains a biographical sketch of Norman Criddle and numerous other brief notes. This mimeographed quarterly is issued by the Inland Bird Banding Association, Edward R. Ford, Secretary, 2013 Greenleaf Ave., Chicago, Ill.

TO OUR CONTRIBUTORS

Our members are urged to submit articles for publication in the BULLETIN. Short items are desired for the department of General Notes, as well as longer contributions, especially pertaining to life-history, migration, ecology, behavior, song, economic ornithology, field equipment, and methods, etc. Local faunal lists are also desired, but they should be annotated, at least briefly, and should be based upon sufficient study to be reasonably complete. Authors are asked to include the common name, the scientific name (from the A. O. U. Check-List), and annotations, and they should be arranged in this order. The annotations should include explicit data concerning unusual species. Omit serial numbering.

THE MANUSCRIPT. The manuscript, or copy, should be prepared with due regard for literary style, correct spelling and punctuation. Use sheets of paper of good quality and of letter size (8½x11 inches); write on one side only, and leave wide margins, using double spacing and a reasonably fresh, black ribbon.

The title should be carefully constructed so as to indicate most clearly the nature of the subject matter of the contribution. Where the paper deals with a single species it is desirable to include in the title both the common and the scientific names, or, to include the scientific name in the introductory paragraph. Contributors are requested to mark at the top of the first page of the manuscript the number of words contained. This will save the editor's time and will be appreciated.

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